DOCUMENT RESUME

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TITLE Open Concept School for Indian Education. End of Budget Period Report, 1972-73.
INSTITUTION Sault Sainte Marie Public Schools, Mich.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Michigan State Dept. of Education, Lansing.
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DESCRIPTORS *Academic Achievement; *American Indians; Cognitive Development; Disadvantaged Groups; Elementary School Students; Federal Programs; Individualized Programs; Objectives; *Open Education; Performance Factors; Preschool Children; *Program Evaluation; Psychomotor Skills; School Community Relationship; Skill Development; Socioeconomic Status; *Tables (Data)
IDENTIFIERS *Elementary Secondary Education Act Title III; ESEA Title III; Michigan; Sault Sainte Marie

ABSTRACT

The Michigan Department of Education's 1972-73 Title III evaluation reports on the Elementary and Secondary Education Act (ESEA), Title I Open Concept School program for Indian education in the Sault Sainte Marie Area Public Schools. Of the 190 students in the school, 103 were of American Indian origin; 59% were from low socioeconomic groups. The program included students from 3 1/2 years of age to 14 1/2 years of age. The major goals were: to demonstrate the feasibility of an open concept neighborhood school for the education of Indian children; to create closer community-school relationships; to improve the performance of students in cognitive skills; to broaden student behavior in affective skill areas; and to increase student mastery of psychomotor skills. Parts I and III give data by ESEA evaluation form; the major content of the report is contained in the Independent Evaluator's Report and Interim Report. This independent report focuses on the cognitive and psychomotor development of students in the Open Concept School; on the program's accomplishment of its stated objectives; and on the operational features of the program as perceived by staff and parents. The report covers: observations of teachers; experimental, control schools; on-site observations; parent and staff questionnaires; staff interviews; junior high follow-up; a review of achievement data; and conclusions and recommendations. Most of the information is also presented in tabular form. (KM)

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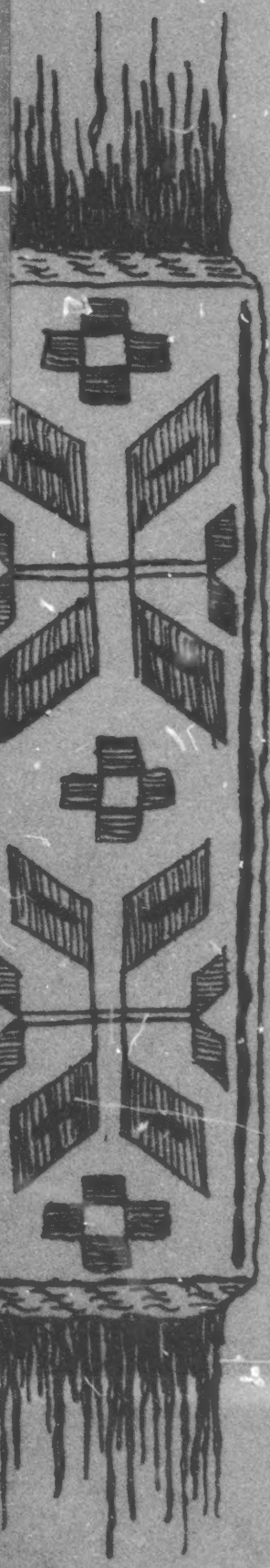
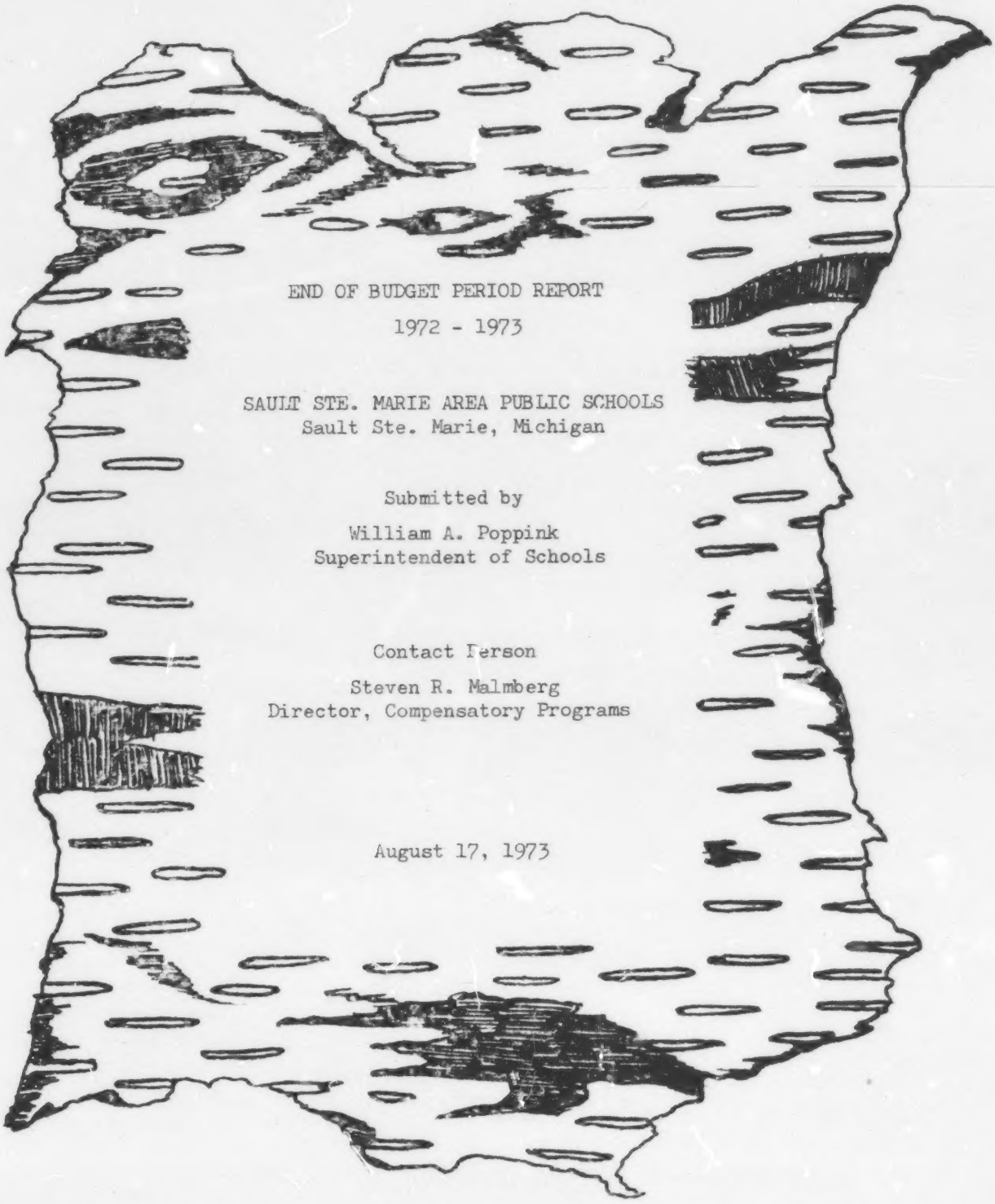


OPEN CONCEPT SCHOOL FOR INDIAN EDUCATION

sault sainte marie, michigan

ED 078178



END OF BUDGET PERIOD REPORT

1972 - 1973

SAULT STE. MARIE AREA PUBLIC SCHOOLS
Sault Ste. Marie, Michigan

Submitted by

William A. Poppink
Superintendent of Schools

Contact Person

Steven R. Malmberg
Director, Compensatory Programs

August 17, 1973

Cover Designs: Landon Clement
Former Finlayson School Student
Age 14, 1973

MICHIGAN DEPARTMENT OF EDUCATION

EXPERIMENTAL AND DEMONSTRATION CENTERS PROGRAM

Lansing, Michigan 48902

PART I

STATISTICAL DATA

GE-4292
6/73

Michigan Department of Education
General Education Services
EXPERIMENTAL AND DEMONSTRATION CENTERS PROGRAM
Box 420 Lansing, Michigan 48902

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E & D Centers Program

PART I - STATISTICAL DATA

THIS SPACE FOR STATE USE ONLY

BUDGET PERIOD	PROJECT PERIOD	PROJECT NUMBER	No. of LEA's Served
Beginning Date Ending Date	☐ 1st ☐ 2nd ☐ 3rd		

MAILING INSTRUCTIONS: Return the ORIGINAL (BLUE) copy and four WHITE copies not later than JULY 31, 1973 to the STATE address indicated above. Retain ONE copy.

SECTION A - PROJECT INFORMATION

	Legal Name	District Code No.	Telephone – Area Code/Local No.
EDUCATIONAL AGENCY	Sault Ste. Marie Area Public Schs.	17-010-17-3-K-12	906/ 632-3379
	Address	**City**	**County** / **Zip Code**
	408 E. Spruce Street	Sault Ste. Marie	Chippewa / 49783

2. REASON FOR SUBMISSION OF THIS FORM (Check One Only)
   - A. ☐ Application for Initial Grant (First Budget Period)
   - B. ☐ Application for Second Budget Period
   - C. ☐ Application for Third Budget Period
   - D. ☒ End of Budget Period Report

3. IN ALL CASES EXCEPT THE INITIAL GRANT, GIVE THE MICHIGAN DEPARTMENT OF EDUCATION ASSIGNED PROJECT NUMBER. 0352 - 0722

4. EMPHASIS OF PROGRAM (Check One Only) ☒ Experimental ☐ Demonstration

5. TYPE OF ACTIVITY (Check One Only)
   - A. ☐ Planning of Program
   - B. ☒ Operation of Program

6. PROJECT TITLE (10 Words or Less) OPEN CONCEPT SCHOOL FOR INDIAN EDUCATION

7. PROJECT FOCUS (Check One Only)
   - A. ☒ General Education
   - B. ☐ Handicapped
   - C. ☐ Guidance and Counseling

8. TITLE III BUDGET SUMMARY FOR PROJECT

STATE USE ONLY

	BEGINNING DATE Month	BEGINNING DATE Year	ENDING DATE Month	ENDING DATE Year	FUNDS REQUESTED	NEGOTIATED BUDGET
A. Application for Initial Grant (First Budget Period)	7/1	71	6/30	72	100,767	
B. Application for Second Budget Period	7/1	72	6/30	73	88,062	
C. Application for Third Budget Period	7/1	73	6/30	74	62,452	
D. Total Title III Funds					251,281	
E. End of Budget Report (Final)	7/1	72	6/30	73		

9. PROJECT DIRECTOR OR CONTACT PERSON

Name / Title	Address (Number, Street, City, State, Zip Code)	Phone Number	Area Code
Steven R. Malmberg Director, State and Federal Compensatory Programs	408 E. Spruce Street Sault Ste. Marie, MI 49783	632/3370	906

10.

Name of Person Authorized to Receive Grant & Title (Please Type)	Address (Number, Street, City, State, Zip Code)
William A. Poppin'z, Superintendent of Schools	408 E. Spruce Street, Sault Ste. Marie, MI 49783

11.

Signature of Person Authorized to Receive Grant	Phone Number	Area Code
William A. Poppins	632-3379	906

SECTION B- PARTICIPANTS

1. NO. OF PARTICIPANTS

	SCHOOLS	STUDENTS			TEACHERS		PARENT		OTHER	
		Elem.	Sec.	Adult	Elem.	Sec.	Prof.	Non-Prof.	Prof.	Non-Prof.
a. DIRECT PARTICIPATION	*PUBLIC	190			9			19	23	16
	• NON-PUBLIC									
b. INDIRECT PARTICIPATION	*PUBLIC							155		
	• NON PUBLIC									

*Refer to Instructions.

2. TOTAL NUMBER AND PERCENTAGE OF STUDENTS DIRECTLY SERVED

	WHITE	NEGRO	ORIENTAL	LATIN AMERICAN	AMERICAN INDIAN	TOTAL
a. Number	87				103	190
b. Percentage	46%				54%	100%

3. NUMBER AND PERCENTAGE OF RURAL/URBAN DISTRIBUTION OF STUDENTS BEING DIRECTLY SERVED BY PROJECTS

	RURAL [1]		STANDARD METROPOLITAN AREA [2]		OTHER URBAN [3]		TOTAL PARTICIPATION [4]
	FARM	NON-FARM	LOW-SOCIO-ECONOMIC	OTHER	LOW-SOCIO-ECON	OTHER	
a. Number of Participants being Directly Served					112	78	190
b. Percentage being Directly Served					59%	41%	100%

1. RURAL means an outlying area of less than 2,500 inhabitants.
2. STANDARD METROPOLITAN AREA-LOW-SOCIO-ECONOMIC AREA means an area with low-socio-economic level within a city of 50,000 inhabitants or more.
3. OTHER URBAN means areas with less than 50,000 inhabitants but more than 2,500 inhabitants; this category includes suburbs.
4. The total percent distribution must total 100%.

SECTION C- APPLICANT SCHOOL DISTRICT INFORMATION

1. GENERAL INFORMATION

GENERAL INFORMATION	U.S. CONGRESSIONAL DISTRICT	MICHIGAN	
		Senate District	Rep. District
Applicant District	11th	37th	107th

2. DISTRICT AVERAGE PER PUPIL EXPENDITURE

	LOCAL	STATE	OTHER	TOTAL
A. BUDGETED FOR CURRENT FISCAL YEAR 72-73	275.48	568.19	17.22	860.89
B. ACTUAL PRECEDING FISCAL YEAR 19 71-72	239.93	555.61	46.30	841.84
C. SECOND ACTUAL PRECEDING FISCAL YEAR 19 70-71	261.43	477.50	29.99	768.92

3. APPLICANT SCHOOL DISTRICT ENROLLMENT

		GRADES							ADULT	OTHER	TOTALS
		PRE-K	K	1	2	3	4-6	7-12			
ENROLLMENT OF APPLICANT SCHOOL DISTRICT	Public*	20	294	346	371	362	1161	2454	124	27	5159
	Non-Public**										
PERSONS DIRECTLY SERVED BY PROJECTS LIVING IN APPLICANT DISTRICT	Public	20	20	23	23	25	79				190
	Non-Public										

*DS-4061 DISTRICT SUMMARY: 1971 Fourth Friday Membership and Personnel Report
**DS-4325 Private & Parochial School Membership Report

SECTION D- COOPERATING SCHOOL DISTRICT INFORMATION DOES NOT APPLY

1. COOPERATING SCHOOL DISTRICTS (PUBLIC AND NON-PUBLIC)

		GRADES							ADULT	OTHER	TOTALS
		PRE-K	K	1	2	3	4-6	7-12			
ENROLLMENT OF COOPERATING SCHOOL DISTRICTS	Public*										
	Non-Public**										
PERSONS DIRECTLY SERVED BY PROJECTS OTHER THAN THOSE IN APPLICANT DISTRICT	Public										
	Non-Public										

*DS-4061 DISTRICT SUMMARY: 1971 Fourth Friday Membership and Personnel Report
**DS-4325 Private & Parochial School Membership Report

2. COOPERATING SCHOOL DISTRICTS (PUBLIC AND NON-PUELIC)

TOTAL NUMBER OF COOPERATING SCHOOL DISTRICT DIRECTLY SERVED	U.S. CONGRESSIONAL DISTRICTS REPRESENTED (LIST DISTRICT(S) NUMBER)	STATE MICHIGAN REPRESENTATION (LIST THE NUMBER(S))	
		Senate	Rep.

3. AVERAGE PER PUPIL EXPENDITURE OF COOPERATING SCHOOL DISTRICTS

LEGAL NAME OF COOPERATING SCHOOL DISTRICT	AVERAGE PER PUPIL EXPENDITURE			
	Local	State	Other	TOTAL
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

CERTIFICATION: I certify that the information submitted on this report is true and correct to the best of my knowledge.

Date 8/17/73 Superintendent or Authorized Official William A. Poppink (Signature)

William A. Poppink, Superintendent of Schools

Contact Person Steven R. Malmberg Telephone 906/ 632-3370

Area Code/Local No.

MICHIGAN DEPARTMENT OF EDUCATION

EXPERIMENTAL AND DEMONSTRATION CENTERS PROGRAM

Lansing, Michigan 48902

PART III

EVALUATION DATA

GE-4499
6/73

Michigan Department of Education
General Education Services
EXPERIMENTAL AND DEMONSTRATION PROGRAM
Box 420 Lansing, Michigan 48902

PART III – EXPERIMENTAL AND DEMONSTRATION PROJECT EVALUATION REPORT

EDUCATIONAL AGENCY	Legal Name of School District: Sault Ste. Marie Area Public Schs.	District Code No.: 17-010-17-3-K-12	Telephone - Area Code Local No.: 906/ 632-3379
	Address: 408 E. Spruce Street	City: Sault Ste. Marie	Zip Code: 49783

MAILING INSTRUCTIONS: Return the ORIGINAL (BLUE) copy and four WHITE copies not later than JULY 31, 1973 to the STATE address indicated above. Retain ONE copy.

SECTION A: COMMUNITY CHARACTERISTICS (Answer in terms of where the target population lives.)

1. What has been the average population trend during the last three years in your community? (Check One Only)
   - [ ] a. Decreasing
   - [X] b. Stable
   - [ ] c. Increasing (1–5%)
   - [ ] d. Increasing (6–10%)
   - [ ] e. Increasing (more than 10%)

2. What has been the average unemployment rate during the last three years in your community? (Check One Only)
   - [ ] a. 0–1%
   - [ ] b. 2–5%
   - [ ] c. 6–8%
   - [ ] d. 9–11%
   - [X] e. More than 11%

3. What is the average income level in your community? (Check One Only)
   - [ ] a. 0–$5,000
   - [X] b. $5,001–$7,500
   - [ ] c. $7,501–$10,000
   - [ ] d. $10,001–$15,000
   - [ ] e. More than $15,000

4. What is the major occupation in your community? (Check One Only)
   - [ ] a. Small Business
   - [ ] b. Light Industry
   - [ ] c. Heavy Industry
   - [ ] d. Professional
   - [ ] e. Farming
   - [X] f. Other (describe) Government and service occupations 30%; clerical and sales 15%.

SECTION B: SCHOOL CHARACTERISTICS

1. How many school buildings are there in the project?

a. Elementary	1 5
b. Secondary	0

2. The most recent millage request:
   - [X] a. Passed
   - [ ] b. Failed

3. Has the school district recently suffered financial cutbacks?
   - [ ] a. Yes
   - [X] b. No

SECTION C: PROGRAM CHARACTERISTICS

1. The critical need which the project primarily focuses upon is: (Check One Only)
   - [ ] a. Basic Skills Development
   - [X] b. Alternative Instructional and Organizational Patterns
   - [ ] c. Career Development
   - [ ] d. Social Action
   - [ ] e. Special Education
   - [ ] f. Other (specify) _____

2. Who conducted the assessment of the perceived needs?
   - [X] a. District Staff
   - [ ] b. Non-district Staff
   - [ ] c. None

   If you checked "a" or "b", Check ALL of the methods used in the assessment of the perceived needs.
   - [ ] a. Survey
   - [ ] b. Individual Opinion
   - [X] c. Group Opinion
   - [X] d. Other (specify) Student achievement results drawn from historical perspectives.

3. The needs assessment was based upon:
   - [ ] a. Student Performance Objectives
   - [X] b. Previously Identified Students Needs

   If you checked "a", List the measurement devices used, or if you checked "b", list the previously identified student needs.

The needs assessment for this project is a continuing process and is based in part on perceived student needs which are being assessed by individual conferences and testing, in part on questions raised by parents and others, and in part on information of a statistical nature gathered to substantiate socio-economic and ethnic problems in the attendance area.

A scrutiny of the educational process in the open-concept school occurs continuously, especially through weekly staff meetings, but also through scrutiny by consultants and visitors who, through their questions, force the staff into a more critical analysis of the program. In response to this process evaluation, a number of recommendations for improvement have been made and have for the most part been incorporated into the project. Evaluation, testing, and recommendations are incorporated in the Evaluator's Report.

4. Is this program a modification of a previously existing program?
   - [ ] a. Yes
   - [X] b. No

5. Who was primarily responsible for developing the IDEA for the program? (Check One Only)

- [ ] a. Local Administration
- [ ] b. ISD Administration
- [X] c. Instructional Staff
- [ ] d. Students
- [ ] e. Community
- [ ] f. Commercial Firm
- [ ] g. University
- [ ] h. Other (specify) _____

6. Was the program faced with unusual social or economic conditions?

- [X] a. Yes
- [ ] b. No

If "YES", please list these conditions.

The population to be served by the project represents four separate and distinct socio-economic groups which have values that are at times contradictory to each other. By far the largest group has a rural Indian origin; generally one finds low educational attainment, high incidence of family disruptions, and high dependency on welfare. A second group represents inhabitants of low cost housing areas; they are of mixed ethnic origin (some Indian), as a group they are generally a little better educated, and as a rule more aggressive in making demands. The third group is a rural segment living on Sugar Island; these people are of mixed European and some Indian ancestry, they are essentially rural in outlook and prefer a semi-isolate way of life. The fourth group is the smallest in numbers; these can be classified as white middle-class, they live on the fringe of the school attendance area, and despite the small number, this has historically been the group that has had dialogue with school authorities. Their relative power position tends to be most severly affected by the new relationships created through the Title III project.

SECTION D: PARTICIPANTS

1. The major target population in this project is: (Check One Only)

- [X] a. Students
- [ ] b. Teachers
- [ ] c. Aides
- [ ] d. Administrators
- [ ] e. Parents
- [ ] f. Counselors
- [ ] g. Other (specify) _____

2. If the major target population is students, then indicate the age range and average age of the students.

a. Age Range of Students

LOWEST AGE		HIGHEST AGE	
YEARS	MONTHS	YEARS	MONTHS
3	6	14	6

b. Average Age of Students

YEARS	MONTHS
8	3

f. Indicate in the appropriate boxes, the number of participants who were in the project when it started, and the number in the program as of the end of this year.

PARTICIPANTS	NUMBER OF PARTICIPANTS	
	Start of Program	End of Program
a. Students	190	202
b. Teachers	9	9
c. Aides	7	7
d. Administrators	1½	1½
e. Parents	19	155
f. Counselors	0	0
g. Project Staff (include Director)	10	10
h. Others	½	½

If the major target population is students, then indicate the GRADE LEVEL SPAN represented in the program.

3½ yrs. To 6th grade

The project focuses primarily on:

- [ ] a. Females
- [ ] b. Males
- [X] c. No focus by sex

What choice(s) best describes the participation of the target population? (Check Two if Appropriate)

- [ ] a. Voluntary
- [X] b. Involuntary sample (non-random)
- [ ] c. Random Selection
- [ ] d. Random Stratified Selection
- [ ] e. Total Population
- [ ] f. Other (describe) _____

Is the target population involved in any other special projects aimed at meeting similar critical needs?

- [X] a. Yes
- [ ] b. No

If "YES", list the projects.

Selected students were served by Title I components. Approximately twenty students received one-to-one tutorial assistance in basic reading skills and twenty-five students participated in a five week summer school experience which was patterned after the model of the open concept school. Selected students were also served by the Title I health consultant and by the Title I home-school agent. In both of these cases the service was based on individual needs and involved attempts to work with the parents through home visits. The total number of students receiving one or more of the services described above is estimated at seventy-three persons.

SECTION E: MAJOR PROJECT GOALS

1. Restate the major goals from your first year application for the first year of the project. Indicate by placing an "X" in the appropriate box the goals that were achieved.

[X] 1. Demonstrate the feasibility of an open concept neighborhood school for the education of the Indian cultural minority.

[X] 2. Create closer community-school relationships.

[X] 3. Improve the performance of students in cognitive skills.

[X] 4. Broaden student behavior in affective skill areas.

[X] 5. Increase student mastery of psychomotor skills.

[ ] 6. _____

1. Are you reporting on all of the program performance objectives in that section of this report dealing with findings? (Check One Only)

[X] a. Yes

[ ] b. No

If "NO", please explain why you have deleted some of the objectives.

3. Complete this item for EACH learner performance objective. (Extra copies of this page are provided.)

a. State the performance objective.

Please refer to Evaluator's Report for detailed breakdown.

b. Give the number of learners for whom the above objective is applicable: _____

c. For the above performance objective provide.

(1) Number of learners who achieved the criterion for success at the beginning of this project year.	
(2) Number of learners who achieved 150% or more of the criterion for success by the end of this project year.	
(3) Number of learners who achieved 100% to 149% of the criterion for success by the end of this project year.	
(4) Number of learners who achieved 75% to 99% of the criterion for success by the end of this project year.	
(5) Number of learners who achieved 50% to 74% of the criterion for success by the end of this project year.	
(6) Number of learners who achieved 25% to 49% of the criterion for success by the end of this project year.	
(7) Number of learners who achieved 1% to 24% of the criterion for success by the end of this project year.	
(8) Number of learners who achieved 0% of the criterion for success, or regressed, by the end of this project year.	

SECTION F: DESIGN

1. Which of the following designs were used in the evaluation of this project? (Check All That Apply)

- [ ] a. Fretest-Postest (Project group only)
- [X] b. Pretest-Postest (Project and comparison groups)
- [ ] c. Postest only (Project group only)
- [ ] d. Postest only (Project and comparison groups)
- [ ] e. Other (describe) _____

2. What measures were applied to find out if the aims of the project were achieved? (Check All That Apply)

- [X] a. Questionnaire
- [X] b. Standardized Tests (group)
- [ ] c. Teacher Made Tests
- [X] d. Observations
- [ ] e. Diagnostic
- [ ] f. Unobtrusive Measures
- [ ] g. Other (describe) _____

3. If observations were made, were the observers specially trained?

- [X] a. Yes
- [ ] b. No

ECTION G: DATA ANALYSIS

I. STANDARDIZED TEST RESULTS

COLUMN INSTRUCTIONS:

COLUMN 1: Provide the name and level of the test used.
COLUMNS 2–3: Provide DAY, MONTH, and YEAR of pre- and post-test applications. If you cannot remember the exact dates, please estimate them as closely as possible.
COLUMN 4: Supply the grade level of the children tested. Remember, provide separate information for each grade level if possible
COLUMN 5: Provide the number of children tested.
COLUMN 6: Provide the LOWEST pretest score from all students for whom both pretest and posttest scores are available.
COLUMN 7: Provide the HIGHEST pretest score from all students for whom both pretest and posttest scores are available.
COLUMN 8: Provide an estimate of the average hours the children were involved in the project between PRE- and POST-TESTS.
COLUMNS 9–10: Provide the pre- and post-test averages in grade equivalent scores.
COLUMNS 11–12: Provide the difference between pre- and post-test averages.

TEST NAME AND LEVEL OF TEST	WHEN ADMINISTERED (Day, Month and Year)		GRADE	NUMBER OF STUDENTS	PRETEST SCORE		AVERAGE NUMBER OF HOURS CHILDREN INVOLVED IN PROJECT	PRE TEST AVG.	POST TEST AVG.	AMOUNT OF CHANGE	
	Pre	Post			Lowest	Highest				Gain	Loss
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PLEASE REFER TO INDEPENDENT EVALUATOR'S REPORT BY DR. HENRY PRINCE IN											
ATTACHED SEPARATE SECTION.											

2. Was any statistical analysis of the data undertaken?

[X] a. Yes
[ ] b. No

3. If analysis was undertaken, which of the following was used? (Check All That Apply)

a. Chi Square
X b. T-Test
c. Analysis of Variance
d. Analysis of Covariance
e. Pearson Product-Moment Correlation
f. Other (describe) _____

SECTION H: FINDINGS

1. List statistically significant findings.

a.

b. See pages 37 - 40 of attached Independent Evaluator's Report.

c.

d.

e.

f.

g.

h.

i.

j.

k.

l.

m.

n.

List educationally significant findings.

a.

b. See pages 37 - 40 of attached Independent Evaluator's Report.

c.

d.

e.

f.

g.

h.

i.

j.

k.

l.

m.

n.

SECTION I: RECOMMENDATIONS

1. PROJECT IMPROVEMENT

What recommendations for project improvement can be based upon your findings? (i.e., What are you going to do differently in the future?)

Refer to pages 37 - 40 of Independent Evaluator's Report and Interim Report which will be submitted shortly.

2. MICHIGAN DEPARTMENT OF EDUCATION

What recommendations can be made to the Michigan Department of Education as a result of your findings? (i.e., Project should be replicated in the southeast area of the State at a rural district or project should be expanded in terms of budget.)

The Department of Education could assist in dissemination activities by suggesting specific methods of dissemination and by giving technical help in layout and graphics.

It is also recommended that the State Department consider supporting a replication of the program in a different setting such as inner-city.

3. **REPLICATION**

At this point in time, what component(s) of this project can and should be replicated by other school districts? (Indicate your reasons.)

1. Pre-school

2. Open Classroom

3. Laboratory-Library Operation

SECTION J: INFORMAL EVALUATIVE RESPONSE

Please use this opportunity, if you so desire, to express any feelings, reactions, concerns, etc. with regard to your project which you feel need to be stated.

Documentation of gains show in several areas; likewise, expected weaknesses are apparent in others. A re-alignment of staff is taking place, and a special Indian Education Grant has been approved to devote sincere time and opportunity to the children and families that are serviced by the Finlayson School area. Staff vertical interaction was impressed as not in the positive realm and we are moving towards efforts to improve.

Several improvements cannot be specifically documented but are apparent to observers who have known the situation before the start of the project; among them are: (1) children enjoy school more; (2) by and large the parents have a more wholesome relationship to the school and tend to come to school more freely and are less reluctant to express themselves; (3) the incidence of vandalism at school has been reduced; and (4) the amount of fighting among the children has diminished considerably.

Some of the problems and concerns that have surfaced during the last year of operation included difficulty in finding substitutes that could function in the open school environment.

SECTION K: PROJECT EVALUATION DOCUMENTS

Attach one (1) copy of any evaluation material (including locally developed instrument(s)) available during the first year of operation by your staff or your contracted evaluator. (Please list below all attachments)

Independent Evaluation Report - by Dr. Henry J. Prince with supportive documents.

Interim Report with supportive documents to be submitted shortly.

EXTERNAL

EVALUATION

REPORT

OPEN-CONCEPT SCHOOL FOR INDIAN EDUCATION

SUBMITTED BY

DR. HENRY J. PRINCE

August 7, 1973

PREFACE

This evaluation report focuses on the cognitive and psychomotor development of the students in the Open Concept School (Finlayson) in Sault Ste. Marie, Michigan; on the program's accomplishment of its stated objectives; and on the operational features of the program as perceived by staff and parents.

The achievement data has been reported by grade level for the Finlayson students, even though grades, as such, are not part of the school's structure. This method was employed so that some comparisons with the control school could be made and the grade-level equivalent gain of the Finlayson pupils could be identified in a more understandable manner.

The evaluator has been ably assisted in the statistical evaluation of data by Dr. Donald Hastings, who was employed for those activities but who also contributed much in the way of suggestions for evaluation procedures and data interpretation.

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Appendix 41

Observations of Teachers:
Experimental, Control Schools

In November, 1972, three trained observers visited each classroom and learning center in the experimental and control schools. Each teacher was observed by two different individuals so that the observations would be more reliable. All teachers were observed for a minimum of one hour.

An observation rating scale adapted from an instrument developed by Walberg and Thomas was employed.[1] Their scale was reduced in size from fifty items to twenty for manageability. Observers indicated the amount of evidence (much, some, none) present in the classroom to support each statement of the rating scale.

In order to identify whether the experimental school differed in operation from the control school, means and variances were compiled on each item. Prior to use of the t-test, non-homogeneity of variance was checked and several items were excluded from consideration of statistical significance. On five items the schools differed at a .001 significance level, while on three additional items the schools differed at the .01 level. Results are indicated in Table 1.

TABLE 1

Ratings of classrooms: experimental and control

N = 19, 19

Statement	Experimental Mean	Control Mean
Each child has the same text and materials	1.47	2.74 *
Many different activities go on simultaneously	3.00	1.68
Children do their own work without help from other children	1.47	2.21
Children, with their teacher's help, determine their own routine during blocks of class time	2.63	1.32 *
Children work individually and in small groups at various activities	2.95	1.68
Children are not supposed to move about the room without asking permission	1.00	1.58
Teacher uses much time in individualized observing and questioning	2.58	1.79 **

[1] See Walberg and Thomas, Characteristics of Open Education: Toward an Operational Definition.

TABLE 1 (cont.)

Statement	Experimental Mean	Control Mean
The teacher prefers that children not talk when they are supposed to be working	1.00	1.95
Children voluntarily group and regroup themselves	2.90	1.42 *
The teacher plans and schedules the children's activities through the entire day	1.58	2.68 *
The teacher groups children for lessons directed at specific needs	1.68	1.53
Children expect the teacher to correct all their work	1.68	1.84
The work children do is divided into subject matter areas	1.84	2.74
The teacher's lessons and assignments are given to the class as a whole	1.16	2.58
Children spontaneously look at and discuss each other's work	2.37	2.05
The teacher bases her instruction on each individual child and his interaction with materials and equipment	2.31	1.47 **
Children work directly with available manipulative materials	2.63	1.42 *
Children may voluntarily use other areas of the building during their school time	3.00	1.32
The teacher tries to keep all children within her sight so that she can make sure they are doing what they are supposed to	1.10	2.21
Children help one another	2.58	2.05 **

* Statistically significant at the .001 level
** Statistically significant at the .01 level

The two schools differ primarily in the areas of teacher interaction with students, usage of materials, and formation of classroom sub-groups. The experimental school teachers tend to have more interaction with students on a one-to-one basis, utilizing perceptions of student activity gathered through observation. Materials are more individualized and directly available to students in the experimental school. Finally, experimental students have more input into sub-group arrangements and mutual assistance in learning activities.

Evaluator's On-Site Observations

During the course of the year the evaluator visited the experimental school at least once a month to observe the activities, meet with the principal and staff, and to collect a variety of data. A brief report of each visit was furnished periodically to the staff for consideration of program improvement suggestions. A review of the year-long observation scheme follows.

During the 1971-72 school year considerable, seemingly aimless wandering was noticeable, especially in the first few months. The first few visits of 1972-73 indicated that the aimless wandering was reduced a great deal. The rate of wandering seemed to be a function of the attractiveness of and the availability of exciting learning activities in the various learning centers. As some of the stations became dull, stale, or unexciting, wandering seemed to increase. Hence, it seemed to flutuate during the year, and I anticipate that it may do so in the future.

Small group and individual projects were not very evident in the first few months of the year but became more so as the year progressed. However, the frequency of projects was rather low for such an individualized program. Integrated curricular projects, planned by teacher and student together, are difficult to generate if the communication level between teachers in the various learning centers is low. More attention must be given to diagnosis of student performance level and interest, in order that planned projects may have multi-faceted effects in many curricular areas. Rather than a segmented, conventional curriculum, multi-disciplinary activities should be developed.

Initially, the frequency of student assistance of other students was low; i.e., the number of instances in which older children assisted younger children in their learning activities was minimal. As the year progressed, the "children teach children" approach became more evident, especially in the pre-school and kindergarten sections of the school. Among the other learning stations, the frequency increased but was still low. This "buddy" system has been found effective in several other programs and seems appropriate in the open concept school.

Those learning centers in which activities seemed to be aligned with specific objectives and goals were most often attended by students. Enthusiastic responses were manifested by these students. On the other hand, certain centers tended to be sites of much "busy work" and were not well attended.

Those students who most often wandered in the building seemed to be highly concerned with significant others' (in this case, peers) views of their activities. This apparent insecurity or dependency upon others seems to interfere with student learning. Concern with these students, especially the primary pod subjects, increased during the year on the part of staff members; some but not significant progress was made.

A general impression gained from the visits was that of insufficient attention given to the variance in enthusiasm exhibited by boys and girls. In most cases girls were involved in activities that were genuinely interesting to them (knitting, crocheting, dancing, cooking, art, language activities), while only some boys were eagerly participating in learning activities. Greater attention was given to boys later in the year, mostly by means of a hand-tools project, but the total attention of the staff toward boys was not evident.

Career awareness and exploration activities varied from none to a minimal number during the year. Those which were attempted did not seem meaningful to the students; infrequent activities such as a simulated store or personal career booklets composed of magazine photos have little lasting impact.

The anthropological and sociological approach to social studies is evidently a very appropriate regimen since many students were actively participating in social studies activities. This is the one area in which a wholistic, integrated program appeared effective or even existent.

The arrangement of learning stations engendered some confusion. What appeared to be a junior science room was in fact a hand-tools and art area; it also allowed for much socialization by boys with the teacher, a male. If it was intended to be a science area, science manipulatives such as microscopes, slides, pendulum materials, model kits, and materials for controlled experiments in plant growth should be made available, rather than having such items in a referral-only science-math lab learning station.

The extreme desire for individualization resulted in relatively little small group work. A more efficient approach, exhibited occasionally in the junior social studies and math-science lab centers, involves the arrangement of a small group of students who exhibit a specific deficiency to work together with a staff member. The seemingly individualized approach requires the staff member to deal with the same deficiency with five consecutive students.

The relationship of the library to the other segments of the program needs to be investigated. Much time is spent by the library aide in compiling records of student visits and activities; whether such information is utilized by the

supportive teacher is unknown. If it is not, then less attention should be devoted to such data compilation, and more time should be spent with individual students. Library skills apparently are not often reinforced by supportive teachers.

The observations in general indicate that the program needs to reconsider certain operations and activities and to promote others which are more important. Achievement test data should also be utilized in such a reorganization review.

Parent Questionnaire

A parental survey was arranged for the Finlayson student parents in order to identify if the open concept approach to elementary education was becoming institutionalized. A questionnaire, similar to the one utilized in the 1971-72 evaluation, was employed. Responses are tabulated in Table 2.

TABLE 2

Parental Views of Open-Concept Education

Percentages: n = 67

Statement	YES	NO	NOT SURE	NO ANSWER
Does your child seem satisfied with school this year?	82%	15%	3%	0%
Is your child doing better in school this year than last year?	52%	24%	9%	15%
Does your child tell you about what he/she does in the open-concept program?	88%	3%	9%	0%
Do you know your child's teacher better this year than last year?	60%	25%	3%	12%
Do you like the open-concept program?	51%	30%	16%	3%
Do you feel that your child is learning more this year than in other years?	45%	31%	9%	15%
Have your own feelings toward the school changed this year?	28%	43%	14%	15%
Is your child more interested in school this year?	55%	21%	9%	15%
Do your friends and neighbors like the open-concept program?	26%	33%	36%	5%
Do you think the open-concept program is better for your child than the conventional school?	45%	34%	16%	5%
Have you visited your child's school this year?	90%	9%	0%	1%
Has your child's feelings toward school changed this year?	33%	41%	12%	14%
Have you attended a school council, PTA, or Advisory Council meeting this year?	58%	41%	0%	1%
Have you received explanations of the open-concept program?	88%	9%	0%	3%

Important findings include the result that more parents like the open-concept program this year and fewer dislike it. Many parents feel that their children are learning more this year. These results may be in part due to the increased number of visits to the school by parents and in part to the more detailed explanations of the programs that have been presented in school council, PTA, or Advisory Council meetings and in local media. Many parents also feel that they know their child's teacher better this year; visits to school by parents and home visits by teachers undoubtedly contributed to this attitude.

Though parents indicated that, generally, their children were satisfied with school this year, a number indicated that they believed their children were not doing as well in school this year. An explanation may lie in the fact of numerous visits to the school by parents; some parents may be more critical of the program after it becomes more familiar to them. Despite this criticism, over 50 percent felt that their children were doing better this year than in the previous year.

In summary, the majority of parents responding to the questionnaire gave a favorable rating to the program, and this indicates that open-concept education is becoming institutionalized and accepted in the Finlayson school neighborhood. Continued home visits by teachers and frequent invitations to parents for school visitations will reinforce the generally positive rating of the program.

Staff Questionnaire

In May a questionnaire[2] was distributed to the professionals and paraprofessionals; its purpose was to develop a profile of the staff's views of the program and the operation of the program.

The staff was asked to rate the presently existing open concept program in terms of its proximity to an ideal open concept program. Table 3 contains the results of the ratings.

TABLE 3

Proximity to Ideal Open Concept Program*

N = 9, 11

Statement	Mean (Teachers)	Mean (Aides)
Students are developing better attitudes and a sense of responsibility.	2.22	2.91
Staff members respect and trust one another.	3.00	1.82
The principal is committed to the open concept program.	2.67	2.91
Students are learning the basic skills.	2.55	3.64
Students are developing curiosity and creativity.	2.55	1.90
The principal is helpful and supportive.	3.22	1.82
Teachers have a great deal of influence on the program.	2.11	1.91
There is a well-integrated program.	3.44	3.40
There is good communication with parents.	3.33	2.78

* 1.0 indicates close proximity to ideal, and 7.0 indicates total lack of proximity.

Table 3 reveals that the Finlayson program approximates the ideal open concept program very closely in three areas, teacher influence on the program, student development of more positive attitudes toward school, and student development of curiosity. The program is most distant from the ideal in the areas of parental

[2]The questionnaire was adapted from the SEF Open Plan instrument employed by the Toronto, Ontario, Metropolitan School Board.

communication links, basic skill development by students, and integration of the program's components. Whether cognitive testing results support the staff's perceptions regarding basic skill development will be discussed in the technical section of this report. Even in the three weak areas the program is rated better than average (4.0).

Concerning the operation of the program, most teachers assert that they spend over five hours per week in personal planning and preparation of learning activities. They also admit that they are each involved in joint planning with other teachers more than four hours per week. On the other hand, they tend to spend less than a quarter of their time working with other members of their team; this may account for some of the lack of integration of the program.

Most teachers rate themselves as moderately to very progressive in their teaching style. All but one consider it very easy to integrate new methods or materials into their regular teaching pattern.

Film viewing, according to the teachers, generally occurs less than once a month. This infrequency is partially due to lack of properly operating equipment for film viewing and should be easily increased with such equipment. Filmstrips and/or slides are viewed by students in most learning centers at least five times a month. Availability of operable hardware and appropriate software obviously affects this usage rate.

Tape recorders or listening stations, according to the teachers, are used on the average more than five times a month. Television programs are viewed on the average more than five times a month, although two teachers never have students view programs in their learning centers.

The majority of teachers assert that students in their learning areas select materials for themselves and are encouraged to bring in materials from outside the classroom. Occasionally teachers suggest alternatives from which students choose.

Students work with other students in schoolwork frequently, and they most often self-select peers for assistance. Occasionally, the teacher assigns a tutor (a student who has already mastered a particular skill) to a pupil who exhibits a deficiency.

Teachers tend to focus their attention on individual students in their learning centers, although occasionally class sub-groups are formed for specific instruction.

Teachers occasionally plan regular classroom work together, but the predominant mode of operation is teacher independence in planning and teaching, except for special projects. This lack of coordination undoubtedly affects the integration of

the program and should be eliminated. Unfortunately, the principal perceives more coordination than actually exists; he must exert a leadership role in this area.

Students tend to employ approaches to learning that are chosen from alternative methods suggested by the teacher. However, they do frequently formulate their own methods of solving problems.

Regarding student pacing, each student tends to set his own pace and occasionally works at a pace prescribed for him/her by the teacher. It is a rare occasion when he is expected to work at an uniform pace with the rest of the class.

The size of the group being evaluated tends to take two forms; in some learning centers each student is evaluated by different procedures, while in others the evaluation procedure is identical for all students. Rarely are all students in the school evaluated by the same procedures, except for standardized achievement testing or psychomotor skill analysis.

Student evaluation occurs primarily through commercially prepared instruments (achievement tests, diagnostic instruments, etc.) and through evaluation instruments developed in the various learning centers (teacher-made assignments and other items), according to the teachers. Work samples and anecdotal reports also assist the teacher in her evaluation process.

In summary, the open concept program differs from the conventional classroom in the emphasis on individual work, assessment, and pacing, and in the opportunities for peer group assistance and utilization of media.

Aide Perceptions

The perceptions of the program's aides matches the views of the teachers, except for one category. While the teachers assert that older children work with younger children in the learning centers most of the time, some aides feel that such multi-age peer assistance occurs only some of the time. Perhaps teachers assume that presence implies interaction, whereas the aides notice actual cross-age cooperation. On the other hand, the aides may be extremely busy with an individual student or a few pupils and hence not notice such cross-age assistance occurring.

Staff Interviews

An interview was scheduled for each staff member at the end of the school year to assess their perceptions of the program and to identify areas of concern. The roving teachers (art, music, physical education) were excluded on the basis of infrequent opportunities to work closely with the permanent staff.

In terms of perceptions of the curriculum, the teachers viewed the math and language arts learning centers as the most effective. Science and social studies were categorized as the weak areas. On the other hand, the paraprofessionals (aides) identified physical education and science as the two strong areas while social studies and language arts were termed weakest. (See achievement data review section for evidence supporting both aides and teachers.) These differences can be partially attributable to the fact that most aides performed their duties in one learning center; such center would then receive a high or low score. Opportunities for teachers and aides to work in different learning centers, even for short periods of time (2 - 3 days), should be arranged, if at all possible, to give each member of the staff a more global view of the program.

Staff Recommendations: Program

Each member of the staff was questioned concerning program changes he/she would make for the 1973-74 school year. The number of recommendations varied from three to fourteen.

The paramount recommendation was elimination of the upper/lower pod division (administratively instituted in August) which was seen as detrimental in that it fostered fragmentation of the program and made coordination difficult. Some staff members felt that it created two "grades", and this effect seemed to run counter to the program goals. The division also tended to engender "possessiveness" on the part of the lower pod teachers; they considered a segment of the student body "their" pupils and tended to restrict or not enthusiastically promote pupil visitation to other learning centers. The supportive group approach, combined with the upper pod - lower pod division, may have fostered such an attitude.

A second major recommendation was revision of the staff meeting format. A sizable number of the staff considered the typical agenda of these meetings to be a list of administrative trivia which could be handled more expeditiously by the principal alone or by some other means. One possible approach would be a principal's bulletin which would indicate anticipated data needs or "housekeeping" chores during

a two-week period and allow teachers to submit such data or perform such chores at other than staff meetings. In this manner, staff meetings could be devoted to discussion of curriculum development, learning center management, and student progress; these three areas seemed to get short shrift this year, according to the staff.

Planning time for learning center development and improvement should be increased. The scheduled half-day, in-service sessions could be more effectively utilized, according to the staff, in the learning centers to make them more attractive and effective for students. Frequent revision of the learning centers would prevent any from becoming "stale" and uninteresting to students and staff alike.

Program priorities need to become more definite and yet subject to revision in implementation by the staff. They should not be mere paper objectives, but rather implementable and significant for a child's affective and cognitive development.

A concern was exhibited by several staff members regarding disciplinary guidelines. More attention should be given to problem of disruptive students, i.e., those who bother others who are involved in a learning center activity or who wander from center to center aimlessly. A haven for these students was suggested as well as utilization of behavior modification techniques. Aimless wandering may be due to lack of interest in school or in the available learning centers or arrangements therein.

A number of staff members suggested an integrated project approach to learning. Identification of student interests would enable staff members to develop curricular programs which stimulate further interest and which generate new interests that were previously unknown to pupils. A project approach would alleviate the lack of coordination of learning activities which was evident to some of the professional staff. The one area which occasionally vigorously promoted such integration was the science lab, more especially the home economics portion therein.

Another significant concern was the reading emphasis in the language arts areas. Some staff members felt that more structured reading activities would eliminate the deficiencies in the children's reading achievement. Perhaps this apparent lack of emphasis on reading instruction is due to the general neglect of writing in the entire curriculum. Mere copying of board work or encyclopedia sentences neglects the desire to communicate that all children exhibit to some extent. A notebook or journal of personal observations, ideas, and feelings may be a useful tool to assist pupils in developing their reading-related communication

skills. Project reports that are not merely plagiarisms from books and encyclopedias may also give opportunities for expression. Reading activities need to be connected to non-workbook and non-"busywork" writing activities.

Several teachers and aides expressed concern about program structure for the new students, especially the ex-kindergarteners. The suggestion was made that a semi-structured arrangement be developed for these children so that their transition to a program which expects and demands responsible behavior in both the cognitive and affective domains be as smooth as possible. Limitation of choices for these youngsters may be one approach to employ initially.

Many members of the professional staff recommended that the aides receive a boost in salary in view of the responsibilities they have and the activities they perform. The wide differential between teachers' salaries and aides' wages should be reduced, according to several teachers. At least some arrangement for a weekly salary which would not be reduced because of inclement weather or other alterations in school schedule should be considered.

The final major program recommendation involved greater communication among all staff members. Since the program is a totality rather than a conglomerate of separate classrooms or learning centers, extensive opportunities for significant communication must be provided. The principal and/or staff members should provide the leadership and guidance which has not been sufficiently evident this year. The upper pod - lower pod division also was a contributory factor to the lack of significant communication among the total staff.

The above recommendations and concerns were voiced by a large number of the staff. Additional recommendations, made by one or a few of the staff members, follow; they should also receive due consideration in program revision and improvement.

Career education has been neglected and should have more influence on the program activities. Career education activities tended to be centered in one particular learning center, and even this upper pod center began career awareness in the second semester.

The system of referrals to the lab room should be revised, according to some staff members. Some prefer that the math section of the lab be placed in a math learning center; others suggest that the lab be on a referral basis only for one-half of the day. Others wish the lab to focus on more non-home economics type science activities. Additionally, there needs to be more coordination between the lab and other learning centers, so that they mutually reinforce each other.

Utilization of the library needs to be improved, also. Planning time for

support activities that could be provided by the library has been lacking. Follow-up of library activities and specific referrals also could be improved. Additionally, the library should not house a supportive group, for the physical requirements for a productive supportive group interfere with library possibilities such as story times and creative dramatics.

Other suggestions include use of supportive group time for group discussion and value clarification rather than for specific cognitive skill development. Another suggestion involved use of supportive time for career awareness activities.

Some staff members recommend more diagnostic testing on the part of all teachers and subsequent utilization of the profiles developed from such testing. Prescription of specific skill activities would then follow.

Others desire a revision of the workshop prior to the beginning of the school year. Emphasis should be placed on development of teachers - aides cohesion and understanding of the program goals, on physical preparation of learning centers, and on approaches to building utilization. Collegiality in such decision-making would ensure that positive communication channels are formed between all teachers, all aides, and the principal. Such an approach, rather than an hierarchical administrative pattern of decision-making, would avoid the tension generation that occurred during the last workshop, according to some staff members.

Finally, program improvements involving roving teacher assignment schedules, school psychologist contacts, sharing of materials among learning centers, and more frequent outdoor activities were recommended by some staff members.

In summary, the staff wishes to return, structure-wise, to a modification of the first-year program; to increase staff communication; to utilize staff more effectively; to give more emphasis to affective development; to develop a more effective language arts program; to employ staff meeting and planning time much more effectively; to emphasize a project approach to cognitive development, possibly with prescriptions; and to attempt an integration of curricular activities.

Staff Recommendations: Evaluation

Professionals and paraprofessionals alike suggested various improvements in the evaluation process utilized to assess student development and cognitive growth, as well as improvements in the process of program assessment.

Regarding the former, staff members proposed more employment of diagnostic testing and subsequent prescription of learning activities. The supportive teacher was identified as the appropriate coordinator of such testing; she/he could then make referrals to specific learning centers.

Some staff members suggested reduction in the use of the Purdue Perceptual Motor Survey. A more discrete, diagnostic use of this survey was recommended. Others questioned the appropriateness of the Stanford Achievement Test in view of the reading level of some students in the program. The voluminous testing should also be distributed over a longer period of time. Use of student attitudinal change instruments was also proposed.

A bi-monthly written report on student progress was suggested. The supportive teacher would have responsibility for this activity; she/he would receive support and assistance from other staff members.

Regarding program assessment, visits by other professionals, on a sustained basis, and verbal and/or written reports concerning such visits were suggested. The Sault Area Schools curriculum supervisor was identified as the most appropriate person for such visits. Frequent visits would enable him to evolve a long-term view of program development and student progress; outstanding segments of the program could be promoted in other schools by this individual.

Parental evaluations of the program were also encouraged. Though an instrument was employed to identify parental attitudes toward the program, school-day visits and verbal reports were suggested as also appropriate.

Student evaluation of the program was also recommended.

Finally, more frequent afternoon visits by the evaluator were suggested. In view of the evaluator's other commitments, only occasional afternoon visits are possible. Morning and occasional all day visits will continue to be the norm.

In summary, the staff members wish to utilize more frequent diagnostic testing; to use student evaluations; to promote parental visits and evaluations of the program; to reduce use of some instruments; and to have other professionals evaluate the program on a sustained basis during the year.

Junior High School Follow-Up

The junior high school principal provided the evaluator with some data concerning the performance of former Finlayson open-concept students. Results are tabulated in Table 4.

TABLE 4

School Performance: Grade 7, 8 (1972-73)

Former Finlayson Students

Category	Grade 7 (n=20)		Grade 8 (n=23)	
	Sem. 1	Sem. 2	Sem. 1	Sem. 2
Daily absentee rate	5.5 %	12.7 %	7.3 %	19 %
Discipline referral rate *				
-- one time		10 %		9 %
-- more than once		35 %		39 %
Academic Failure Rate				
-- Math	35 %	25 %	21.7 %	17.4 %
-- English	25 %	20 %	21.7 %	30.4 %
-- Social Studies	15 %	10 %	17.4 %	21.7 %
-- Science	10 %	20 %	21.7 %	21.7 %

* Discipline referral rate was calculated only at the end of the school year.

The results indicate that the eighth graders increased their failure rate as the year progressed, whereas the seventh graders generally decreased their failure rate. Whether this result is due to differences in intelligence or to the increased absenteeism rates, especially among eighth graders, requires additional data which is not now available.

The two most deficient academic areas continue to be math and English. Whether this occurrence will repeat itself next year will be scrutinized, in view of the significant growth in the mathematics area exhibited by present sixth graders.

The junior high pupils are required to select two optional courses in addition to the basic four indicated in Table 4. Their choices are indicated in Table 5.

TABLE 5

Student Selection of Optional Courses

Former Finlayson Students: Grades 7, 8

Option	Grade 7 (n=20)	Grade 8 (n=23)
Health Education	12	1
Physical Education	0	21
Shop	8	4
Art	4	8
Band	2	1
Choir	3	1
French	1	1
Gas Engines	3	1
Conservation	4	0
Creative Stitchery	1	0
Building Construction	0	2
Seminar	0	1
Volunteer Aide	2	3

In both grades former Finlayson students selected diverse options, which have hopefully been fully explained to them prior to selection time.

A review of the grade distribution for the four required courses at the junior high school indicates that some apparent progress in achievement is occurring. The results are tabulated in Table 6.

TABLE 6

Required Course Grade Distribution: Second Semester

Former Finlayson Students: Grades 7, 8

Category	Grade 7 (n=20)					Grade 8 (n=23)				
	A	B	C	D	E	A	B	C	D	E
English *	3	3	4	3	4	3	1	3	6	7
Math	3	4	4	4	5	2	4	7	6	4
Science	2	4	5	5	4	1	3	5	9	5
Social Studies *	4	4	3	6	2	3	5	5	5	5

* In English and Social Studies some students are assigned to a Communication Skills special program. Hence, the total number of grades does not equal n.

The seventh graders achieve A's or B's at the rate of 27 percent, whereas the eighth graders achieve A's or B's at a 19 percent rate. On the other hand, seventh graders receive D's and E's at a 33 percent rate, while eighth graders receive D's

and E's at a 41 percent rate. Factors which might account for these variances include variability in student intelligence, interest in courses, teacher perception of students, teacher grading scale, and effect of open-concept program on student achievement and motivation. Further study is necessary.

Review of Achievement Data

A pre-post, experimental-control comparison group research design was employed in all appropriate areas so that within-group and between-group results could be identified. This quasi-experimental research design was required, since randomization of procedures and student assignment could not be accomplished.

For most categories, i.e., achievement batteries, IQ testing, psychomotor skill review, pre-tests were administered during April and May, 1972 to all students, except for students who enrolled in the experimental (Finlayson) and control (Garfield) schools in September, 1972. Post-tests were administered in May, 1973. All testing was conducted in a regular classroom context, except for the Purdue Perceptual Motor Survey which was administered by experimental school staff, at the experimental school, to both groups.

Instrumentation

The Tests of Basic Experiences (TOBE) was administered to pre-school and kindergarten children to measure gains in general schievement in four curricular areas: mathematics, science, language, and social studies.

The Otis-Lennon Mental Ability Tests were given to students in grades 1 - 6 (or their equivalent in the experimental program). This instrument was employed to identify the similarity or dissimilarity of the intellectual ability of the students in both schools.

The Purdue Perceptual Motor Survey was utilized to assess psychomotor and perceptual development. All students in the experimental school and selected students from the control school were tested. Since scoring involves considerable subjectivity, and since the administering staff were from the experimental program, these results must be carefully reviewed.

The Stanford Achievement Tests were employed as the academic achievement instruments. The various batteries employed yield results in six to ten categories; curricular areas from reading and language to mathematics and science are included. One difficulty in pre-post comparison resulted from the change in categories from one battery (Primary I, II) to another (Primary II, Intermediate respectively). Students in grades 2 and 4 (1971-72) switched batteries for the post-test; hence, students in grades 3 and 5 (1972-73) did not have completely comparable categories for a pre-post comparison.

Results

Initially, an analysis of pre-test results of the Otis-Lennon Mental Ability Test was made to determine similarity or dissimilarity of experimental and control school student populations. Results are tabulated in Table 7. T-tests applied to this data indicate that the two populations were significantly different at all grade levels. Consequently, the application of analysis of variance was considered

TABLE 7

Otis-Lennon Mental Ability Test

Pre-test scores: Experimental, Control

	Finlayson			Garfield				
Grade	n	mean	s.d.	n	mean	s.d.	df	t
1	23	93.57	13.71	25	96.88	9.56	46	- 4.66 *
2	22	92.23	14.39	31	106.48	13.98	51	-18.21 *
3	23	99.00	12.31	38	105.74	15.30	59	- 9.98 *
4	22	100.14	15.82	34	103.30	13.78	54	- 4.04 *
5	26	94.04	15.11	31	101.48	15.11	55	- 9.72 *
6	29	93.24	14.69	40	104.35	13.84	67	-18.47 *

* Significant at .001 level

inappropriate and the utilization of t-tests throughout the analysis was then selected.

Post-test results in Table 8 indicate that experimental students continued to exhibit lower mean IQ scores; however, first graders in each school had very similar scores. Mean IQ scores for the Finlayson are now even further into the normal range than previously. Table 9 reports that, at most grade levels, Finlayson students made significantly greater gains in scholastic aptitude than did Garfield students. Consequently, Finlayson students seem to be closing the gap in IQ that previously existed. These findings seem to indicate that the experimental school program is most influential on scholastic aptitude in the early grades, as evidenced by a decline in grades four and five.

TABLE 8

Otis-Lennon Mental Ability Test

Post-test Scores: Experimental, Control

Grade	Finlayson n	Finlayson mean	Finlayson s.d.	Garfield n	Garfield mean	Garfield s.d.	df	t	
1	23	103.65	13.54	25	106.64	12.13	46	- 3.85	*
2	22	99.32	12.89	31	112.00	13.81	51	-17.19	*
3	23	101.78	14.87	38	107.39	15.91	59	- 7.49	*
4	22	93.77	16.48	34	99.88	15.05	54	- 7.0	*
5	26	92.38	14.79	31	99.58	13.50	55	-10.02	*
6	29	95.14	13.72	40	104.85	13.69	67	-16.82	*

* Significant at the .001 level

TABLE 9

Otis-Lennon Mental Ability Test

Pre-post Gain Scores: Experimental, Control

Grade	Finlayson n	Finlayson mean	Finlayson s.d.	Garfield n	Garfield mean	Garfield s.d.	df	t	
1	23	+10.13	9.56	25	+ 8.92	7.77	46	+2.305	**
2	22	+ 7.27	11.44	31	+ 5.39	7.66	51	+3.51	*
3	23	+ 2.78	9.05	38	+ 1.74	10.12	59	+2.24	**
4	22	- 6.64	10.56	34	- 3.41	9.20	54	-6.19	*
5	26	- 1.96	6.45	31	- 1.58	6.81	55	-1.13	***
6	29	+ 1.97	6.75	40	+ 0.60	7.53	67	+4.53	*

* Significant at the .001 level

** Significant at the .05 level

*** Not significant

TABLE 10

Test of Basic Experiences

Post-test Scores: Experimental, Control

Category	Finlayson (n=24) Pre-School Mean	s.d.	Finlayson (n=20) Kindergarten Mean	s.d.	Garfield (n=28) Kindergarten Mean	s.d.
Math	20.63	4.23	28.85	3.12	22.39	3.12
Language	22.37	4.22	23.85	3.50	22.86	3.49
Science	20.29	4.43	22.60	4.48	22.96	3.40
Social Studies	21.46	3.73	22.55	4.57	22.82	3.84
Total	84.83	14.06	93.35	13.46	91.32	12.06

The results in Table 10 indicate the relative standing of Finlayson pre-schoolers, Finlayson kindergarteners, and Garfield kindergarteners on the post-test of the TOBE. In mean raw scores, the pre-schoolers nearly equaled the Garfield kindergarteners. Results of raw gain scores between kindergarteners are in Table 11.

TABLE 11

Test of Basic Experiences

Pre-Post Raw Gain Scores:

Experimental, Control Kindergarteners df = 43

Category	Finlayson (n=20)	Garfield (n=28)	t
Math	+ 7.0	+ 3.36	+ 12.46 *
Language	+ 5.4	+ 5.4	0.00 ****
Science	+ 5.37	+ 4.96	+ 1.51 ***
Social Studies	+ 6.20	+ 5.76	+ 1.97 **
Total	+ 24.47	+ 19.65	+ 5.62 *

* Significant at .001 level

** Significant at .10 level

*** Significant at .20 level

**** Not significant

The most significant gain was in mathematics, in which Finlayson students doubled the raw score gain of Garfield pupils.

Table 12 reflects the significant growth in psychomotor ability of Finlayson students, relative to the Garfield pupils.

TABLE 12

Purdue Perceptual Motor Survey

Pre-post Gain Scores: Experimental, Control

Grade	Finlayson n	Finlayson Mean Gain	Garfield n	Garfield Mean Gain	df	t
1	25	+ 13.32	8	+ 2.00	31	+ 11.89 *
2	22	+ 1.91	11	- 1.55	31	+ 6.99 *
3	23	+ 4.35	10	- 3.20	31	+ 13.18 *
4	22	+ 1.05	11	- 3.36	31	+ 12.59 *
5	26	+ 0.35	9	+ 6.89	33	- 17.82 *
6	29	+ 0.38	13	- 2.00	40	+ 10.72 *

* Significant at the .001 level

Table 29 in the appendix displays the post-test scores for both schools. These tables indicate that psychomotor skill development exhibits the most pronounced gains in the K - 3 segment of schooling. Consequently, only deficient students in grades 4 - 6 should be tested.

The Stanford Early School Achievement Test (SESAT) was administered to first graders in the experimental and control schools. Results of post-test data are found in Table 30 in the Appendix. In all categories, Garfield pupils achieved a higher raw score. In the environment and aural communication segments the scores were fairly similar, while the greatest difference occurred in the word recognition category.

Table 13 compares the differences in gain scores of Garfield and Finlayson students. Finlayson students made gains in all categories; the greatest gains were recorded in mathematics, word recognition, and letters and sounds.

However, Garfield students also made large gains in these same areas. T-tests indicate that Finlayson pupils made statistically significant greater gains in environment, aural communication, and mathematics. On the other hand, Garfield pupils evidenced significantly greater gains in letters and sounds, in word recognition, and in total score. One can conclude that the Garfield program in language arts is much more effective than the open-concept program. More attention must be given to reform of the Finlayson language arts program.

TABLE 13

Stanford Early School Achievement Test

Pre-post Gain Scores: Experimental, Control

Grade 1

df = 50

Category	Finlayson Mean Gain	Garfield Mean Gain	t
Environment	+ 4.40	+ 4.12	+ 1.45 ***
Mathematics	+ 16.68	+ 15.04	+ 3.93 *
Letters/Sounds	+ 9.8	+ 11.04	- 3.58 *
Aural Communication	+ 4.16	+ 3.80	+ 2.05 **
Word Recognition	+ 16.32	+ 26.76	- 18.90 *
Sentence Reading	+ 5.60	+ 6.00	- 0.83 ****
Total	+ 56.88	+ 65.76	- 8.45 *

*Significant at the .001 level

**Significant at the .05 level

***Significant at the .20 level

****Not significant

Tables 31 - 35 in the Appendix exhibit SAT post-test scores for Finlayson and Garfield students in grades 2 through 6. In grade 3 paragraph meaning, spelling, language, and arithmetic computation are the categories in which Finlayson pupils most conspicuously lagged behind Garfield students. They had relatively similar post-test scores in arithmetic concepts and word study skills.

In grade 4, paragraph meaning, spelling, and language continued to be the categories of greatest difference. Word study skills, as indicated in Table 33 in the Appendix, also showed a large difference between the two groups of students. Post-test scores for word meaning and arithmetic concepts were fairly similar.

Table 34 indicates that this trend of evident weakness in language arts continues into the fifth grade. Arithmetic computation was similar for both groups.

Results of grade 6 students points to a continuation of this trend through the entire language arts program. Finlayson students exhibit deficiencies in paragraph meaning, word study skills, and language, relative to the Garfield pupils. As Table 35 indicates, the two groups are most similar in arithmetic concepts.

In general, the Finlayson pupils lag behind most conspicuously in the language arts area of the curriculum. In view of the significantly lower IQ scores of

Finlayson pupils, this is to be expected. However, a thorough review of the language arts program should be a major component of the August workshop prior to the beginning of the school year.

When we consider differences in gain scores rather than post-test results, Finlayson pupils are making greater progress in several areas. Unfortunately, due to achievement battery changes between pre-test and post-test, only grades 4 and 6 can be so interpreted on the basis of raw scores. However, the other grades, at least in some areas, can be compared on grade-level equivalent basis.

TABLE 14

Stanford Achievement Test: Grade 4

Pre-post Gain Scores: Experimental, Control

df = 52

Category	Finlayson (n=20)	Garfield (n=34)	t
Word Meaning	+ 3.35	+ 3.47	- 0.52 **
Paragraph Meaning	+ 8.95	+ 5.41	+ 10.18 *
Science & Social Studies	- 0.55	+ 2.79	- 12.19 *
Spelling	+ 3.15	+ 6.23	- 15.62 *
Word Study Skills	+ 4.45	+ 5.88	- 4.03 *
Language	+ 3.55	+ 6.38	- 8.26 *
Arithmetic Computation	+ 9.30	+ 2.65	+ 16.65 *
Arithmetic Concepts	+ 7.90	+ 2.94	+ 13.96 *

* Significant at the .001 level

** Not significant

As Table 14 above illustrates, Finlayson students made gains in all categories; greatest gains were evident in paragraph meaning and arithmetic. Finlayson pupils also made significantly greater gains in paragraph meaning, arithmetic computation, and arithmetic concepts.

Change scores for sixth graders are reported in Table 15. Whereas Garfield students exhibited gains in all categories, Finlayson pupils suffered a loss in word study skills. A comparison of the two groups indicates that Finlayson students made significantly greater gains in arithmetic computation and concepts, while Garfield excelled in the language arts areas.

TABLE 15

Stanford Achievement Test: Grade 6

Pre-post Gain Scores: Experimental, Control

df = 67

Category	Finlayson (n=29)	Garfield (n=40)	t
Word Meaning	+ 2.17	+ 3.68	- 8.26 *
Paragraph Meaning	+ 2.07	+ 7.98	- 19.51 *
Science	+ 4.76	+ 4.95	- 0.72 **
Spelling	+ 2.00	+ 3.97	- 8.02 *
Word Study Skills	- 0.96	+ 3.5	- 12.81 *
Language	+ 4.48	+ 4.27	+ 0.55 **
Arithmetic Computation	+ 8.21	+ 3.38	+ 20.66 *
Arithmetic Concepts	+ 3.89	+ 2.10	+ 10.74 *
Arithmetic Applications	+ 3.45	+ 3.35	+ 0.55 **
Social Studies	+ 6.45	+ 6.22	+ 1.18 **

* Significant at the .001 level

** Not significant

These results further substantiate the need for a review of the language arts program. However, they also indicate that the arithmetic program has produced some remarkable achievements. It should be further assessed, and its most effective elements disseminated to other elementary schools in the system.

When we turn from raw scores and consider grade-level equivalents or percentile ranks of achievement test results, a caution must be rendered.* Since the raw score scale does not linearly convert into percentile ranks or grade-level equivalents, several raw scores may translate into one grade equivalent. Hence, the comparisons and judgments therefrom are more tenuous than those made on the basis of raw scores. A few sample comparisons were made to identify potential problems of interpretation; the results indicate that a moderate caution should be employed in grade-level equivalent comparison, but that in most instances comparisons can be readily made.

Table 16 lists the percentile rank of experimental school pupils in grade 1. SESAT results indicate that pupils are making their greatest gains in the math and science areas, while making minimal gains (and a decline) in the language arts

*The analysis from this point on will deal almost entirely with Finlayson students.

areas. It seems that word and sentence reading are the weakest areas for the pupils. Only in environment and math do the pupils achieve near the median percentile rank of 50 for a normal population.

TABLE 16

Stanford Early School Achievement Test: Grade 1

Finlayson: n = 25

Percentile Rank: Pre, Post, Gains

Category	Pre		Post		Gain
	Mean	s.d.	Mean	s.d.	
Environment	36.9	26.6	51.0	27.8	+ 14.1
Math	28.2	25.8	46.2	31.2	+ 18.0
Letters and Sounds	27.9	21.4	34.2	28.7	+ 6.3
Aural Comprehension	25.6	23.9	33.8	21.9	+ 8.2
Word Reading	22.0	19.1	23.3	23.5	+ 1.3
Sentence Reading	31.9	15.9	26.9	22.3	[illegible].0
Total	21.5	20.9	28.4	24.7	+ 6.9

Tables 17 - 21 report the grade equivalent gains for pupils in the program coinciding with grades 2 - 6. In several of the tables categories are indicated by NO SCORE; this indicates that the particular category was either not included in the pre-test or not in the post-test.

TABLE 17

Stanford Achievement Test: Grade 2

Pre-post Grade-level Equivalents: Means, Gains

Experimental Students: n = 19

Category	Post* Mean	Post* s.d.	Pre** Mean	Pre** s.d.	Gain
Word Meaning	2.34	0.72	NO SCORE		
Word Reading	NO SCORE		1.99	0.63	
Paragraph Meaning	2.36	0.80	0.87	0.67	+1.46
Spelling	2.25	1.25	1.25	0.76	+1.00
Word Study Skills	2.61	0.91	1.53	0.63	+1.08
Language	2.38	0.36	NO SCORE		
Vocabulary	NO SCORE		1.87	0.83	
Arithmetic Computation***	2.27	0.57	1.83	0.39	
Arithmetic Concepts***	2.22	0.68			
Science & Social Studies	2.28	0.77	NO SCORE		

* Expected post-test grade equivalent is 2.8
** Expected pre-test grade equivalent is 1.7
*** Pre-test battery combined computation and concepts categories

TABLE 18

Stanford Achievement Test: Grade 3

Pre-post Grade-level Equivalents: Means, Gains

Experimental Students: n = 20

Category	Post* Mean	Post* s.d.	Pre** Mean	Pre** s.d.	Gain
Word Meaning	2.83	0.90	NO SCORE		
Paragraph Meaning	2.82	1.29	2.12	0.84	+0.70
Spelling	2.51	1.16	2.29	0.73	+0.22
Word Study Skills	3.60	1.82	2.72	1.39	+0.88
Language	2.60	0.58	NO SCORE		
Arithmetic Computation***	2.73	0.90	2.24	0.47	
Arithmetic Concepts ***	3.34	0.88			
Science & Social Studies	2.75	0.63	NO SCORE		
Word Reading	NO SCORE		2.15	0.66	
Vocabulary	NO SCORE		1.61	0.43	

*Expected post-test grade equivalent is 3.8
**Expected pre-test grade equivalent is 2.7
***Pre-test battery combined computation and concepts categories

TABLE 19

Stanford Achievement Test: Grade 4

Pre-post Grade-level Equivalents: Means, Gains

Experimental Students: n = 19

Category	Post* Mean	Post* s.d.	Pre** Mean	Pre** s.d.	Gain
Word Meaning	3.45	1.24	2.89	0.95	+0.56
Paragraph Meaning	3.63	1.33	2.81	1.22	+0.82
Spelling	3.43	1.57	2.76	1.65	+0.67
Word Study Skills	4.20	2.04	3.45	1.71	+0.75
Language	3.06	0.92	2.74	0.85	+0.32
Science & Social Studies	3.10	1.10	3.13	1.04	-0.03
Arithmetic Computation	3.62	0.89	2.87	0.60	+0.75
Arithmetic Concepts	4.01	1.55	2.97	1.03	+1.04

* Expected post-test grade equivalent is 4.8
** Expected pre-test grade equivalent is 3.7

TABLE 20

Stanford Achievement Test: Grade 5

Pre-post Grade-level Equivalents: Means, Gains

Experimental Students: n = 24

Category	Post* Mean	Post* s.d.	Pre** Mean	Pre** s.d.	Gain
Word Meaning	4.10	1.57	3.26	1.39	+0.84
Paragraph Meaning	4.21	1.55	3.17	1.01	+1.04
Spelling	4.03	1.14	3.00	1.31	+1.03
Word Study Skills	3.61	1.79	3.09	1.59	+0.52
Language	3.57	1.39	2.87	0.93	+0.70
Arithmetic Computation	4.60	1.04	3.32	0.86	+1.28
Arithmetic Concepts	4.43	1.42	3.68	1.22	+0.75
Arithmetic Applications	4.68	1.60	NO SCORE		
Science***	4.50	1.38			
Social Studies	4.66	1.36	3.55	1.16	---

* Expected post-test grade equivalent is 5.8
** Expected pre-test grade equivalent is 4.7
*** Pre-test battery comgined science and social studies categories

TABLE 21

Stanford Achievement Test: Grade 6

Pre-post Grade-level Equivalents: Means, Gains

Experimental Students: n = 28

Category	Post* Mean	Post* s.d.	Pre** Mean	Pre** s.d.	Gain
Word Meaning	4.92	1.77	4.40	1.29	+0.52
Paragraph Meaning	4.86	2.10	4.44	1.28	+0.42
Spelling	4.53	1.45	4.24	1.12	+0.29
Word Study Skills	4.31	2.05	4.18	1.90	+0.13
Language	4.19	1.66	3.76	1.48	+0.43
Arithmetic Computation	5.21	1.22	3.96	0.74	+1.25
Arithmetic Concepts	5.56	1.36	4.81	1.07	+0.75
Arithmetic Applications	5.53	1.78	4.62	1.42	+0.91
Social Studies	5.51	1.81	4.42	1.16	+1.09
Science	5.46	2.05	4.58	1.36	+0.88

* Expected post-test grade equivalent is 6.8

** Expected pre-test grade equivalent is 5.7

Table 17 indicates that Finlayson students made substantial gains in paragraph meaning, spelling, and word study skills, but that only in word study skills do they approximate the nominal grade-level equivalent of 2.80. Even in the arithmetic area are the students noticeably deficient. The students gained more than the anticipated 0.75 grade-levwl equivalent stipulated in the project's objectives.

Third graders exceeded the project's anticipated gains in word study skills and arithmetic. Paragraph meaning gains approximated the project's objective of 0.75, but other areas were clearly deficient, as Table 18 illustrates.

Table 19 clearly indicates the arithmetic gains that become the trend for the ramining grade levels. Fourth graders met or exceeded the project's stipulated objective of academic gain in four areas: paragraph meaning, word study skills, arithmetic computation, and arithmetic concepts. However, only in word study skills and arithmetic concepts do the Finlayson pupils approach the nominal grade-level equivalent.

Fifth graders met or exceeded the stipulated grade-level gain in five categories: word meaning, paragraph meaning, spelling, arithmetic computation, and arithmetic concepts. Science and social studies seemed to be other areas of

significant gain, although a direct comparison could not be made, due to test battery change. Table 20 indicates that only in the non-language arts area do fifth graders approach the nominal grade-level equivalent of 5.80. In fact, in all categories these students are at least one grade level below average in achievement.

Table 21 indentifies the language arts areas as those in which only minimal gain occurred. In the other five categories, students met or exceeded the project's objectives in the cognitive domain. These pupils made a remarkable mean gain of 1.25 years in arithmetic computation. Despite these enormous gains, students were at least one year behind in all categories, on the average.

In summary, the mathematics, science and social studies areas were the categories of the curriculum in which upper pod Finlayson students consistently exceeded the project's objectives. In contrast, the lower pod pupils tended to perform better in some of the language arts areas; this was especially true of the older lower pod students. These conclusions lead to a recommendation that the upper - lower pod division be eliminated, most especially so that positive, effective elements of instruction in the lower pod can be more efficiently communicated to the upper pod and vice-versa. Continuation of this division would seriously hamper such sharing.

Consideration of the program's effect on students of Indian descent versus those of non-Indian ancestry begins with the TOBE in pre-school and kindergarten. A cautionary note should be voiced. Since the number of subjects in each category is few, the recognition and assertion of statistical significance is tenuous. Only in categories with a very large t should much credence be given to the assertion of significance. Table 22 on the following page indicates that only in social studies did the Indians significantly exceed the others.

Table 23 on the following page shows that Indian kindergarteners exceeded the others to a significant degree in all categories. However, the small number of non-Indians may affect the significance level.

TABLE 22

Test of Basic Experiences: Finlayson Pre-school

Pre-post Raw Gain Scores: Indian, Non-Indian

df = 20

Category	Indian (n=4) Mean	s.d.	Non-Indian (n=18) Mean	s.d.	t	
Language	+11.25	4.85	+ 9.55	4.76	+ 2.01	***
Mathematics	+ 9.25	3.86	+ 8.05	2.90	+ 2.00	***
Social Studies	+12.25	4.27	+ 8.17	4.74	+ 5.17	*
Science	+ 8.25	4.99	+ 7.11	3.69	+ 1.48	***
Total	+41.00	15.60	+32.89	10.54	+ 3.49	**

* Significant at the .001 level

** Significant at the .01 level

*** Not significant

TABLE 23

Test of Basic Experiences: Finlayson Kindergarten

Pre-Post Raw Gain Scores: Indian, Non-Indian

df = 18

Category	Indian (n=16) Mean	s.d.	Non-Indian (n=4) Mean	s.d.	t	
Language	+ 6.18	4.77	+ 2.25	1.89	+ 5.89	*
Mathematics	+ 8.00	5.50	+ 3.00	3.37	+ 5.88	*
Social Studies	+ 7.00	4.05	+ 3.00	0.81	+ 7.35	*
Science	+ 6.13	4.08	+ 2.50	1.73	+ 5.99	*
Total	+28.13	14.91	+10.75	5.06	+ 8.09	*

* Significant at the .001 level

Indians and non-Indians were compared on the basis of Stanford Achievement Tests in grades 1 - 6. Non-Indians exceeded Indians in all language arts areas to a significant degree in the first grade. Table 24 reports that both groups made mean gains in all categories. Sentence reading seems to be the area of greatest weakness for Indian students, in terms of the mean gain compared to the number of items in that category on the SESAT.

TABLE 24

Stanford Early School Achievement Test: Grade 1

Pre-post Raw Score Gains: Indian, Non-Indian

Finlayson Students: df = 23

Category	Indians (n=15) Mean	s.d.	Non-Indians (n=10) Mean	s.d.	t	
Environment	+ 4.8	3.51	+ 3.8	2.97	+ 2.55	**
Mathematics	+17.0	7.35	+17.6	6.31	- 0.73	***
Letters and Sounds	+10.6	6.77	+ 8.0	5.46	+ 3.51	*
Aural Comprehension	+ 3.4	2.64	+ 5.3	3.94	- 4.70	*
Word Reading	+15.0	12.43	+18.3	10.36	- 2.39	**
Sentence Reading	+ 4.4	6.22	+ 7.0	8.38	- 2.93	*
Total	+54.8	20.52	+60.0	21.25	- 2.07	**

*Significant at the .01 level

**Significant at the .05 level

***Not significant

Tables 25 - 28 report the Indian and non-Indian grade-level equivalent gain scores for grades 2 through 6.* As can be observed in Table 25, only three categories are directly comparable between the pre-test battery and the post-test battery for grades 2 and 3; categories are altered when switching from one SAT battery to another, except for a few categories. The Indian students and the others made very large gains in grade 2, exceeding the program's stated objective of 0.75 grade equivalent gain. However, grade 3 students of non-Indian ancestry exceeded the Indian pupils in all categories; a significantly greater gain was made by non-Indians in spelling.

Two conclusions can be drawn from these findings. The first is that the open concept program has a definite, positive influence on cognitive achievement of most non-Indian students; the mean gain in one year was at least one year grade-level equivalent. Hence, the open-concept program is conducive to cognitive development in the early grades.

A second conclusion relates to the performance of Indian students. Though they made remarkable progress in grade 2, generally the open-concept program has not significantly influenced these children in the language arts areas. A perusal

*Tables 36-41 in the Appendix report the SAT post-test equivalents.

of Tables 26 - 28 indicates that in non-language arts areas the Indian students generally made remarkable gains. Since social studies, science, and arithmetic are less culture-bound than the language arts areas and since Indian students performed well in these areas, one can conclude that factors beyond the control of the staff and administration of the open-concept program have considerable influence on Indian student performance. Home language patterns and frequency of interpersonal communication are two factors that may be responsible for this effect. Continued, frequent contact with parents by staff members - in school and in the home - may begin to reduce the influence of the factors that affect language arts performance.

A careful review of Table 26 indicates that the non-Indian children exceeded the Indian students in all categories, except language and arithmetic. The non-Indians made significantly greater gains in word meaning and word study skills. Non-Indians, additionally, surpassed the project's objective in four categories: word meaning, paragraph meaning, word study skills, and arithmetic concepts. The Indian pupils exceeded the stated objective of 0.75 grade-level gain in two categories which are not critically culture-bound: arithmetic concepts and arithmetic computation.

Table 27 reports that the Indian children exceeded the project's objective in five categories: word meaning, paragraph meaning, spelling, arithmetic computation, and arithmetic concepts. Non-Indian fifth graders at Finlayson exceeded the objective in four categories: word meaning, paragraph meaning, spelling, and arithmetic computation. Indian pupils made significantly greater gains in three categories, while non-Indians made a significantly greater gain in arithmetic computation.

Indian sixth graders at Finlayson exceeded the project's cognitive objective in three categories: arithmetic computation, arithmetic concepts, and social studies. On the other hand, non-Indian students surpassed the objective in four categories: arithmetic computation, arithmetic applications, social studies, and science. Indian pupils showed significantly greater gains in paragraph meaning and arithmetic concepts. Non-Indian pupils made significantly greater gains in arithmetic computation, arithmetic applications, and science.

In general, non-Indian students did exceedingly well in paragraph meaning and arithmetic computation. Indian students did exceptionally well in paragraph meaning, arithmetic computation, and arithmetic concepts.

Indian students generally had four very weak areas: word meaning, language, spelling, and word study skills. Non-Indians exhibited minimal gains in language, spelling, and word study skills. An obvious conclusion is the necessity of language arts reform, especially in the area of vocabulary.

TABLE 25

Stanford Achievement Test: Grades 2, 3

Pre-post Grade Equivalent Gain Scores

Finlayson Students: Indian, Non-Indian

Grade 2	Indian (n=9) Mean	s.d.	Non-Indian (n=10) Mean	s.d.	t (df = 17)
Paragraph Meaning	+1.51	0.52	+1.50	0.76	+0.18 **
Spelling	+1.00	0.76	+1.00	1.18	+0.00 **
Word Study Skills	+1.08	1.00	+0.99	0.58	+0.68 **
Grade 3	**Indian (n=16)**		**Non-Indian (n=7)**		**(df = 21)**
Paragraph Meaning	+0.57	0.54	+1.24	0.86	-0.66 **
Spelling	+0.11	0.62	+1.04	0.46	-12.10 *
Word Study Skills	+0.88	0.95	+1.08	0.59	-1.84 **

* Significant at the .001 level

** Not significant

TABLE 26

Stanford Achievement Test: Grade 4

Pre-post Grade Equivalent Gain Scores

Finlayson Students: Indian, Non-Indian

df = 19

Category	Indian (n=9) Mean	s.d.	Non-Indian (n=12) Mean	s.d.	t
Word Meaning	+0.15	0.60	+0.88	0.66	-8.04 *
Paragraph Meaning	+0.72	0.32	+0.83	0.82	-0.29 **
Social Studies & Science	-0.28	1.18	-0.06	1.44	-1.18 **
Spelling	+0.51	0.62	+0.57	0.99	-0.51 **
Word Study Skills	+0.22	0.79	+0.98	0.93	-6.43 *
Language	+0.33	0.49	+0.27	0.59	+0.74 **
Arithmetic Computation	+0.81	0.65	+0.65	0.44	+1.89 **
Arithmetic Concepts	+1.19	1.02	+0.89	0.89	+2.07 **

* Significant at the .001 level

** Not significant

TABLE 27

Stanford Achievement Test: Grade 5

Pre-post Grade Equivalent Gain Scores

Finlayson Students: Indian, Non-Indian

df = 23

Category	Indian (n=17) Mean	s.d.	Non-Indian (n=8) Mean	s.d.	t
Word Meaning	+0.86	0.41	+0.81	0.65	+0.67 **
Paragraph Meaning	+1.01	0.78	+0.96	1.51	+0.32 **
Spelling	+1.25	0.94	+0.87	1.09	+2.92 *
Word Study Skills	+0.67	0.85	+0.19	1.34	+3.43 *
Language	+0.63	1.05	+0.71	0.76	-0.72 **
Arithmetic Computation	+1.18	0.84	+1.51	0.99	-2.84 *
Arithmetic Concepts	+0.88	1.16	+0.49	0.96	+2.92 *

*Significant at the .01 level

**Not significant

TABLE 28

Stanford Achievement Test: Grade 6

Pre-post Grade Equivalent Gain Scores

Finlayson Students: Indian, Non-Indian

df = 27

Category	Indian (n=14) Mean	s.d.	Non-Indian (n=15) Mean	s.d.	t
Word Meaning	+0.47	0.86	+0.57	1.04	-1.06 ****
Paragraph Meaning	+0.59	1.17	+0.33	1.23	+2.19 ***
Spelling	+0.26	0.56	+0.34	1.01	-0.91 ****
Word Study Skills	-0.21	1.62	+0.00	1.18	-0.15 ****
Language	+0.38	0.85	+0.52	0.98	-1.52 ****
Arithmetic Computation	+0.98	0.77	+1.35	0.88	-4.65 *
Arithmetic Concepts	+0.99	0.79	+0.66	1.21	+3.21 **
Arithmetic Applications	+0.69	0.93	+1.03	1.33	-2.88 **
Social Studies	+1.15	0.98	+1.11	1.05	+0.42 ****
Science	+0.74	1.27	+1.01	1.09	-2.26 ***

*Significant at the .001 level

**Significant at the .01 level

***Significant at the .05 level

****Not significant

Conclusions and Recommendations

The project's first objective to be considered is cognitive skills performance of students. In general, experimental school students made outstanding gains in the mathematics areas. Large grade-equivalent gains were also made in paragraph meaning and word study skills, except by students of the upper pod. The factors which accounted for these accelerated gains (accelerated in terms of previous performance) can only be speculated about. The existence of a math lab, staffed by a very competent teacher and aide, undoubtedly affected the growth in arithmetic. Additionally, access to many manipulatives in the math areas may have been a significant factor. Diagnostic testing and project or prescriptive teaching in the areas seemed to be prevalent, at least in a few learning centers.

Regarding the two language arts areas in which substantial gain was generally made, the considerable amount of time allotted to language arts teaching, especially in the lower pod, may have been the key factor. However, since spelling and language were two areas of very minimal gain, the identification of key factors influencing one segment of the language arts area and not another require more detailed observation and analysis.

Table 42 in the Appendix indicates the gains exhibited by students in the Title I reading program which co-exists with the open-concept program and which possibly may affect interpretation of program results. The Title I reading program has apparently had consistent success in stimulating spelling improvement, with mixed results for paragraph meaning and word study skills. Considering the limited number of participants from each grade level (except grade six), attribution of considerable influence to the Title I reading program is suspect at this time.

Review of Title I math influence was rejected in view of the very limited number of students from each grade level (usually one or two).

In most segments of the curriculum the project achieved its stated objective of 0.75 grade equivalent gain; however, the language arts area is a definite weakness and should be revamped. Additional attention should be given to vocabulary development and writing activities.

A small group activity that may be a very effective means is the tutorial approach employed very successfully in many elementary schools. Deficient readers in upper elementary grades act as tutors to deficient readers in the lower elementary grades. Such a program has been found to generate significant growth by both groups.

This approach would also reinforce a basic idea of the open-concept philosophy, i.e., a learning site in which children of all ages assist each other rather than merely working in the same learning station. Though this approach was attempted by some teachers, a greater commitment by the entire staff is necessary.

During the August workshop the staff should consider the type of materials and activities that would be appropriate for students. Usage of items such as dittos, workbooks, puzzles, games, textbooks, trade books, hand tools, and commercially prepared materials must be reviewed. Some staff members felt that certain items were very inappropriate; yet there was little evidence that the entire staff considered this differing viewpoints. Increased communication among the staff is a definite need; candor, especially, is required in such a program. However, since an administrator's spouse was on the staff, such candor was greatly restrained.

The science program needs some revitalization, especially in the lower pod of the program. The expectation that the science-math lab will provide all appropriate science-related activities is an inappropriate judgment on the part of the staff. Coordination among learning centers, especially in science and language arts, is necessary.

Both Indian children and non-Indian children seem to be benefitting from the program, and hence specific activities aimed exclusively at either group is not absolutely necessary. Verbal performance for both groups needs improvement.

Regarding the second objective (broaden student behavior in the affective domain), the program seems to have made progress in reducing vandalism and in increasing attendance rates. The students must exhibit a willingness to receive information before they can respond or begin value clarification. If they did not attend the open-concept school, the school itself would have little opportunity for influencing children. Hence, the school is succeeding in this first aspect of affective development.

Some students do not exhibit a valuing response to the program. These students, generally the wanderers, require a system of reinforcement that would promote and sustain student responsibility for task completion. More students are completing their work, according to the staff, but more progress could be made. Perhaps this lack of concern is partially attributable to "busy work" activities assigned by teachers. Mutual planning, with consistent reinforcement, may be one means to promote commitment. Another may be a coordinated learning approach among the learning stations, so that supportive teachers are aware of pupils who require more assistance in both the cognitive and affective areas.

More attention also must be devoted to career education activities which promote a consideration of value judgments that pupils will need to make in their school careers and later. This area was a definite weakness this year.

The evaluation process, both internal and external, needs to focus more time and attention to the affective domain.

The third objective (increase in student mastery of psychomotor skills has certainly been achieved. In fact, specific prescriptions for deficient students seems the best approach to continue during the next year. Evaluation of psychomotor growth may be appropriately reduced to these specific students and to students in the early elementary segment of the program. Another option would be to assess all students but to focus evaluation review on the early elementary students, who seem to make the greatest progress.

The fourth objective (flexible student management practices) has been achieved, but could be further expanded next year. A more effective behavior modification program should be discussed and implemented by the staff, especially for the wandering students and those who fail to complete assignments. Prescriptive teaching, based on mutually arranged learning activities, may prove effective.

The open-concept program achieved its fifth objective (the utilization of alternate staffing patterns). However, a large majority of the staff reported that the upper/lower pod division be dissolved and an alternate learning center arrangement be devised during the August workshop. Such a revision would enable staff members to become more familiar with learning opportunities in the various centers. Also, staff members should consider a plan of rotation among centers, for short periods of time, to increase the staff's awareness of that aspect of the program.

The sixth objective (increase in parental understanding of the objectives and procedures of the program) has been partially achieved. More parents are aware of the program and its objectives, yet their understanding of specific procedures is not accurately known at this time. Parents have increased in their acceptance of the program, but there still exists a minority of parents who are uncertain about the program's benefits. Further exploration of the parents' views is necessary.

More time should be devoted to planning and learning center preparation than was allotted this year. Additionally, staff meetings should concentrate on student deficiencies and means of promoting student progress. Other means should be employed for dealing with administrative trivia.

Staff members should develop procedures for identifying specific learning weaknesses and recommending prescriptive assignments to eliminate these deficiencies. Such diagnostic analysis, recorded in a journal or notebook periodically

(perhaps weekly or bi-weekly), would increase program efficiency and insure that attention was focused on an individual student's specific deficiencies.

Finally, evaluation procedures need to be improved, i.e., identical pre-test and post-test batteries must be given all students. Hence, some additional testing in September will be necessary.

In general, the open-concept program has exhibited success in improving the cognitive capabilities of its students (with some curricular exceptions), has had some influence in the affective domain that can be identified, and has altered conventional staffing and student management procedures. The program should be continued and improved.

APPENDIX

TABLE 29

Purdue Perceptual Motor Survey

Post-test Total Raw Scores: Experimental, Control

Grade	Finlayson n	Finlayson Mean	Garfield n	Garfield Mean
Pre-school	15	46.2	NO SUBJECTS	
Kindergarten	19	54.37	NO SUBJECTS	
1	25	63.24	8	58.38
2	22	70.73	11	65.27
3	23	75.61	10	69.70
4	22	74.55	11	73.27
5	26	75.65	9	74.44
6	29	76.41	13	77.54

TABLE 30

Stanford Early School Achievement Test

Post-test Raw Scores: Experimental, Control

Grade 1

Category	Finlayson (n=25) Mean	Finlayson (n=25) s.d.	Garfield (n=27) Mean	Garfield (n=27) s.d.
Environment	26.36	4.72	27.85	4.14
Mathematics	40.36	10.57	47.48	5.60
Letters/Sounds	31.88	6.84	38.41	3.03
Aural Communication	17.24	2.89	18.93	3.04
Word Recognition	33.56	14.29	51.48	5.09
Sentence Reading	15.4	6.27	18.74	9.80
Total	165.04	36.57	202.93	21.17

TABLE 31

Stanford Achievement Test: Grade 2

Post-test Raw Scores: Experimental, Control

Category	Finlayson (n=19) Mean	s.d.	Garfield (n=31) Mean	s.d.
Word Meaning	13.84	6.58	16.00	8.21
Paragraph Meaning	22.26	11.84	27.45	11.54
Science & Social Studies	15.68	4.14	18.00	5.59
Spelling	9.26	8.32	10.88	7.18
Word Study Skills	31.63	9.09	36.15	13.14
Language	31.89	4.71	33.21	8.21
Arithmetic Computation	17.73	7.75	23.47	6.15
Arithmetic Concepts	12.58	6.77	18.21	6.46

TABLE 32

Stanford Achievement Test: Grade 3

Post-test Raw Scores: Experimental, Control

Category	Finlayson (n=23) Mean	s.d.	Garfield (n=38) Mean	s.d.
Word Meaning	18.26	6.86	23.58	6.46
Paragraph Meaning	29.26	14.19	38.39	12.38
Science & Social Studies	18.35	4.01	22.42	5.12
Spelling	12.78	8.10	19.5	6.76
Word Study Skills	38.57	13.27	42.39	13.00
Language	34.30	7.46	41.68	9.46
Arithmetic Computation	23.74	12.68	33.18	11.52
Arithmetic Concepts	25.22	7.86	28.29	9.89

TABLE 35

Stanford Achievement Test: Grade 6

Post-test Raw Scores: Experimental, Control

Category	Finlayson (n=29) Mean	s.d.	Garfield (n=40) Mean	s.d.
Word Meaning	20.07	8.52	28.03	7.45
Paragraph Meaning	30.90	14.03	41.78	12.00
Spelling	24.52	10.76	35.85	9.83
Word Study Skills	33.38	14.78	46.75	10.51
Language	69.10	16.26	84.15	15.66
Arithmetic Computation	22.72	6.63	28.45	5.49
Arithmetic Concepts	18.55	5.70	21.48	5.48
Arithmetic Applications	18.83	6.76	23.43	5.20
Social Studies	27.62	9.12	34.88	6.87
Science	30.69	11.62	37.63	8.44

TABLE 36

Stanford Achievement Test: Grade 1

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category *	Indian (n=16) Mean	s.d.	Non-Indian (n-13) Mean	s.d.	Difference
Word Reading	1.56	0.45	1.60	0.50	- 0.04
Paragraph Meaning	1.44	0.50	1.37	0.60	+ 0.07
Vocabulary	1.60	0.35	1.74	0.54	- 0.14
Spelling	1.15	0.92	1.23	0.86	- 0.08
Word Study Skills	1.70	0.56	1.69	0.56	+ 0.01
Arithmetic	1.96	0.60	1.97	0.48	- 0.01

* Nominal post-test grade equivalent is 1.80.

TABLE 33

Stanford Achievement Test: Grade 4

Pre-test Raw Scores: Experimental, Control

Category	Finlayson (n=25) Mean	s.d.	Garfield (n=34) Mean	s.d.
Word Meaning	21.08	8.65	25.09	6.22
Paragraph Meaning	33.44	15.62	42.79	11.09
Science & Social Studies	18.76	5.06	23.94	5.10
Spelling	14.72	10.68	23.38	6.10
Word Study Skills	38.96	15.82	47.32	12.35
Language	37.72	9.44	46.74	9.64
Arithmetic Computation	34.24	10.46	39.32	9.26
Arithmetic Concepts	26.32	13.09	30.32	10.38

TABLE 34

Stanford Achievement Test: Grade 5

Post-test Raw Scores: Experimental, Control

Category	Finlayson (n=25) Mean	s.d.	Garfield (n=32) Mean	s.d.
Word Meaning	15.20	8.36	23.91	8.02
Paragraph Meaning	25.64	11.40	36.72	9.55
Spelling	20.20	9.55	28.75	8.13
Word Study Skills	28.72	13.59	41.13	10.91
Language	60.52	17.26	73.88	15.81
Arithmetic Computation	18.36	7.13	20.31	6.80
Arithmetic Concepts	13.52	5.64	16.78	5.27
Arithmetic Applications	15.08	7.39	18.16	5.67
Social Studies	22.52	8.47	27.09	9.60
Science	24.76	9.34	29.84	9.26

TABLE 37

Stanford Achievement Test: Grade 2

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category*	Indian (n=9) Mean	s.d.	Non-Indian (n=10) Mean	s.d.	Difference
Word Meaning	2.20	0.67	2.46	0.77	- 0.26
Paragraph Meaning	2.22	0.63	2.48	0.95	- 0.26
Science & Social Studies	1.95	0.64	2.58	0.78	- 0.63
Spelling	2.07	1.19	2.42	1.34	- 0.35
Word Study Skills	2.62	1.02	2.60	0.85	+ 0.02
Language	2.27	0.33	2.48	0.38	- 0.21
Arithmetic Computation	2.24	0.53	2.30	0.64	- 0.06
Arithmetic Concepts	2.36	0.70	2.10	0.67	+ 0.26

* Nominal post-test grade equivalent is 2.8.

TABLE 38

Stanford Achievement Test: Grade 3

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category*	Indian (n=17) Mean	s.d.	Non-Indian (n=7) Mean	s.d	Difference
Word Meaning	2.68	0.66	3.17	1.15	- 0.49
Paragraph Meaning	2.61	0.96	3.26	1.69	- 0.65
Science & Social Studies	2.53	0.57	3.43	0.89	- 0.90
Spelling	2.54	1.29	3.03	0.51	- 0.49
Word Study Skills	3.41	1.67	3.80	1.79	- 0.39
Language	2.54	0.57	2.71	0.65	- 0.17
Arithmetic Computation	2.81	0.98	2.69	0.70	+ 0.12
Arithmetic Concepts	3.25	0.83	3.77	0.86	- 0.52

* Nominal post-test grade equivalent is 3.8.

TABLE 39

Stanford Achievement Test: Grade 4

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category*	Indian (n=9) Mean	s.d.	Non-Indian (n=16) Mean	s.d.	Difference
Word Meaning	2.55	0.78	3.59	1.27	- 1.04
Paragraph Meaning	3.24	1.45	3.29	1.33	- 0.05
Science & Social Studies	2.84	1.04	2.99	1.23	- 0.14
Spelling	2.40	1.41	3.45	1.61	- 1.05
Word Study Skills	2.69	1.22	4.31	2.18	- 1.62
Language	2.64	0.91	3.04	0.86	- 0.40
Arithmetic Computation	3.64	0.86	3.49	0.80	+ 0.15
Arithmetic Concepts	3.69	1.52	3.56	1.62	+ 0.13

* Nominal post-test grade equivalent is 4.8.

TABLE 40

Stanford Achievement Test: Grade 5

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category*	Indian (n=19) Mean	s.d.	Non-Indian (n=8) Mean	s.d.	Difference
Word Meaning	3.62	1.00	5.21	2.09	- 1.59
Paragraph Meaning	3.65	1.21	5.04	1.99	- 1.39
Spelling	3.72	0.77	4.62	1.52	- 0.90
Word Study Skills	3.01	1.19	4.62	2.30	- 1.61
Language	3.11	1.14	4.40	1.48	- 1.29
Arithmetic Computation	4.10	0.94	5.27	1.07	- 1.17
Arithmetic Concepts	4.05	1.26	5.20	1.52	- 1.15
Arithmetic Applications	4.08	1.53	5.55	1.31	- 1.47
Social Studies	4.21	0.81	5.49	1.88	- 1.28
Science	4.06	0.85	5.26	1.89	- 1.20

* Nominal post-test grade equivalent is 5.8.

TABLE 41

Stanford Achievement Test: Grade 6

Post-test Grade Equivalents: Indian, Non-Indian

Finlayson Students

Category*	Indian (n=14) Mean	s.d.	Non-Indian (n=15) Mean	s.d.	Difference
Word Meaning	4.58	1.48	5.14	1.98	- 0.56
Paragraph Meaning	4.67	1.75	4.99	2.38	- 0.32
Spelling	4.40	0.88	4.61	1.82	- 0.21
Word Study Skills	3.94	2.13	4.44	1.99	- 0.50
Language	3.86	1.63	4.51	1.63	- 0.65
Arithmetic Computation	4.96	0.91	5.45	1.40	- 0.49
Arithmetic Concepts	5.76	1.14	5.47	1.56	+ 0.29
Arithmetic Applications	5.28	1.41	5.69	2.06	- 0.41
Social Studies	5.57	1.70	5.40	1.91	+ 0.17
Science	5.25	2.05	5.58	2.06	- 0.33

* Nominal post-test grade equivalent is 6.80.

TABLE 42

Stanford Achievement Test: Title I Reading (Finlayson)

Pre, Post Grade Equivalents: Means, Gains

Grade 6 (n=5)	Post Mean	Pre Mean	Gain
Word Meaning	3.55	3.37	+ 0.18
Paragraph Meaning	3.41	3.25	+ 0.16
Spelling	3.52	3.39	+ 0.13
Word Study Skills	2.52	2.56	- 0.04
Language	2.82	2.86	- 0.04
Grade 5 (n=4)			
Word Meaning	3.20	2.40	+ 0.80
Paragraph Meaning	3.75	2.50	+ 1.25
Spelling	3.25	2.02	+ 1.23
Word Study Skills	2.62	2.07	+ 0.55
Language	2.50	2.27	+ 0.23

TABLE 42 (cont.)

Stanford Achievement Test: Title I Reading (Finlayson)

Pre, Post Grade Equivalents: Means, Gains

Grade 4 (n=2)	Post Mean	Pre Mean	Gain
Word Meaning	2.30	2.30	0.00
Paragraph Meaning	2.50	2.10	+ 0.40
Spelling	2.90	1.55	+ 1.35
Word Study Skills	2.40	1.40	+ 1.00
Language	2.30	1.80	+ 0.50